

0059314

SAF-B02-037
105H Rx FSB Fill/Sludge Sampling for
Waste Designation
FINAL DATA PACKAGE

FAX RESULTS TO:

Rikki Thoren 372-2183

N/A
INITIAL/DATE

VERIFICATION OF CLIENT RECEIPT:

Phone or CC:Mail to Rikki Thoren

N/A
INITIAL/DATE

COMPLETE COPY OF DATA PACKAGE TO:

Rikki Thoren

X9-05

B.L. 3/6/03
INITIAL/DATE

COMMENTS: (PLEASE INCLUDE THE FOLLOWING ON THE FAX COVER SHEET)

SDG

(H1973)

SAF-B02-037

Rad only

Chem only

Rad & Chem

Complete

Partial

Add-on Tech99

RECEIVED
MAY 13 2003

EDMC



2003
FEB

February 26, 2003

Ms. Joan Kessner
Bechtel Hanford Inc.
3350 George Washington Way
Richland, WA 99352
MSIN: H0-25

Reference: P.O. #630
**Eberline Services R2-11-083-7393, SDG H1973 – Supplemental Report
R3-02-047-7393 (Tc-99)**

Dear Ms. Kessner:

Enclosed is the data report for six solid (soil) samples designated under SAF No. B02-037 received at Eberline Services on November 18, 2002. The samples were analyzed according to the accompanying chain-of-custody documents. This supplemental report is being issued to report technetium-99 data for samples in SDG H1973.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Program Manager

MCM

Enclosure: Data Package

Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1973 was composed of six solid (soil) samples designated under SAF No. B02-037 with a Project Designation of: 105H Rx FSB Fill/Sludge Sampling for Waste Designation.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on December 6, 2002 and February 20, 2003.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

The RPD (26%) between sample J006F4 and its sample duplicate was greater than the 3σ limit (22%), but within the BHI protocol limit (35%) for solids. No other problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

The RPD (26%) between sample J006F4 and its sample duplicate was greater than the 3σ limit (21%), but within the BHI protocol limit (35%) for solids. No other problems were encountered during the course of the analyses.

2.3 Nickel-59 Analyses

The Ni-59 activity was corrected for Ni-63 interference (result and 2σ count error have been modified). The calculation excel spreadsheet is included herein. No problems were encountered during the course of the analyses.

2.4 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.5 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.6 Technetium-99 Analyses

BHI requested the samples in SDG H1973 be analyzed for Tc-99 on February 11, 2003. No problems were encountered during the course of the analyses.

2.7 Isotopic Thorium Analyses

Samples J006F6 and J006H2 both had yields of 106%. No other problems were encountered during the course of the analyses.

2.8 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses.

2.9 Neptunium-237 Analyses

There was activity (0.113 pCi/g) in the method blank. The activity was less than RDL (1.0 pCi/g) for Np-237. There was no Np-237 activity in any of the client samples. No other problems were encountered during the course of the analyses.

2.10 Isotopic Plutonium Analyses

There was activity in the plutonium method blank. The activity (0.218 pCi/g) was less than the RDL (1.0 pCi/g) for Pu-239/240. No other problems were encountered during the course of the analyses.

2.11 Plutonium-241 Analyses

No problems were encountered during the course of the analyses.

2.12 Americium-241 Analyses

Due to plutonium contamination in the Am-241 sample aliquots the Am-241 samples (except for sample J006H2) were reworked in chemistry to remove the contamination. The data from the reworked (R1) samples is reported herein (original Am-241 data for sample J006H2 reported). No other problems were encountered during the course of the analyses.

2.13 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa Mannion

Melissa C. Mannion
Program Manager

2/26/05

Date

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H1973

S U M M A R Y D A T A S E C T I O N

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Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 02/20/03

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

R E P O R T G U I D E

Client Hanford
Contract No. 630
Case no SDG H1973

A B O U T T H E D A T A S U M M A R Y S E C T I O N

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES

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SUMMARY DATA SECTION

Page 1

Lab id EBRLNE
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Version 3.06
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E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

G U I D E , c o n t .

Client Hanford
Contract No. 630
Case no SDG H1973

A B O U T T H E D A T A S U M M A R Y S E C T I O N

D U P L I C A T E S

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

M A T R I X S P I K E S

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

D A T A S H E E T S

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

M E T H O D S U M M A R I E S

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

R E P O R T G U I D E S

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

R E P O R T G U I D E S

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S U M M A R Y D A T A S E C T I O N

Page 2

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1973

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
J006F4	105H	SOLID		R211083-01	B02-037	B02-037-07	11/06/02 14:21
J006F6	105H	SOLID		R211083-02	B02-037	B02-037-08	11/07/02 10:35
J006F8	105H	SOLID		R211083-03	B02-037	B02-037-09	11/07/02 13:32
J006H0	105H	SOLID		R211083-04	B02-037	B02-037-10	11/11/02 13:04
J006H2	105H	SOLID		R211083-05	B02-037	B02-037-11	11/11/02 10:35
J006H4	105H	SOLID		R211083-06	B02-037	B02-037-12	11/07/02 13:32
Method Blank		SOLID		R211083-08	B02-037		
Method Blank		SOLID		R211083-12	B02-037		
Lab Control Sample		SOLID		R211083-07	B02-037		
Lab Control Sample		SOLID		R211083-11	B02-037		
Duplicate (R211083-01)	105H	SOLID		R211083-09	B02-037		11/06/02 14:21
Duplicate (R211083-01)	105H	SOLID		R211083-13	B02-037		11/06/02 14:21
Spike (R211083-02)	105H	SOLID		R211083-10	B02-037		11/07/02 10:35

SAMPLE SUMMARY

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SUMMARY DATA SECTION

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1973

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLLECTOR	DEPARTMENT SAMPLE ID
7393	B02-037-07	J006F4	SOLID	83.4	1434 g		11/18/02	12 R211083-01	7393-001
	B02-037-08	J006F6	SOLID	86.2	1012 g		11/18/02	11 R211083-02	7393-002
	B02-037-09	J006F8	SOLID	81.2	1249 g		11/18/02	11 R211083-03	7393-003
	B02-037-10	J006H0	SOLID	86.0	948.5 g		11/18/02	7 R211083-04	7393-004
	B02-037-11	J006H2	SOLID	81.1	1408 g		11/18/02	7 R211083-05	7393-005
	B02-037-12	J006H4	SOLID	80.4	1341 g		11/18/02	11 R211083-06	7393-006
	Method Blank		SOLID					R211083-08	7393-008
	Method Blank		SOLID					R211083-12	7393-012
	Lab Control Sample		SOLID					R211083-07	7393-007
	Lab Control Sample		SOLID					R211083-11	7393-011
	Duplicate (R211083-01)		SOLID	83.4	1434 g		11/18/02	12 R211083-09	7393-009
	Duplicate (R211083-01)		SOLID	83.4	1434 g		11/18/02	12 R211083-13	7393-013
	Spike (R211083-02)		SOLID	86.2	1012 g		11/18/02	11 R211083-10	7393-010

QC SUMMARY

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1973

TEST	MATRIX	METHOD	PREPARATION ERROR			PLANCHETS ANALYZED			QUALI-		
			BATCH	2σ %	CLIENT MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	FIRS
Alpha Spectroscopy											
AM	SOLID	Americium 241 in Soil	7052-062	5.0	6				1	1	1/1
NP	SOLID	Neptunium in Soil	7052-062	5.0	6				1	1	1/1
PU	SOLID	Plutonium, Isotopic in Solids	7052-062	5.0	6				1	1	1/1
TH	SOLID	Thorium, Isotopic in Soil	7052-062	5.0	6				1	1	1/1
U	SOLID	Uranium, Isotopic in Soil	7052-062	5.0	6				1	1	1/1
Beta Counting											
SR	SOLID	Total Strontium in Soil	7052-062	10.0	6				1	1	1/1
TC	SOLID	Technetium 99 in Soil	7052-062	10.0	6				1	1	1/1
Gamma Spectroscopy											
GAM	SOLID	Gamma Scan	7052-062	15.0	6				1	1	1/1
Liquid Scintillation Counting											
C	SOLID	Carbon 14 in Soil	7052-062	10.0	6				1	1	1/1
H	SOLID	Tritium in Soil	7052-062	10.0	6				1	1	1/1
NI_L	SOLID	Nickel 63 in Soil	7052-062	10.0	6				1	1	1/1
PU_L	SOLID	Plutonium 241 in Soil	7052-062	5.0	6				1	1	1/1
Gamma Spectroscopy											
NI	SOLID	Nickel 59 in Soil	7052-062	10.0	6				1	1	1/1
											X

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.

Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

PREP BATCH SUMMARY

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1973

CLIENT SAMPLE ID		LAB SAMPLE ID								
LOCATION	MATRIX	COLLECTED			SUF-					
CUSTODY	SAF No	RECEIVED	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD	
J006F8 105H B02-037-09	SOLID B02-037	R211083-03 11/07/02 11/18/02	7393-003 7393-003 7393-003 7393-003 7393-003 7393-003 7393-003 7393-003 7393-003 7393-003 7393-003 7393-003 7393-003 7393-003 7393-003 7393-003 7393-003 7393-003 7393-003	AM C GAM H NI NI_L NP PU PU_L SR TC TH U	R1	12/05/02 11/25/02 12/02/02 11/27/02 12/04/02 12/02/02 12/04/02 12/02/02 12/05/02 11/30/02 02/20/03 12/03/02 11/27/02	12/06/02 12/06/02 12/06/02 12/06/02 12/06/02 12/06/02 12/06/02 12/06/02 12/06/02 12/06/02 02/20/03 12/06/02 12/06/02	MCM MCM MCM MCM MCM MCM MCM MCM MCM MCM MCM MCM MCM MCM	Americium 241 in Soil Carbon 14 in Soil Gamma Scan Tritium in Soil Nickel 59 in Soil Nickel 63 in Soil Neptunium in Soil Plutonium, Isotopic in Solids Plutonium 241 in Soil Total Strontium in Soil Technetium 99 in Soil Thorium, Isotopic in Soil Uranium, Isotopic in Soil	
J006H0 105H B02-037-10	SOLID B02-037	R211083-04 11/11/02 11/18/02	7393-004 7393-004 7393-004 7393-004 7393-004 7393-004 7393-004 7393-004 7393-004 7393-004 7393-004 7393-004 7393-004 7393-004 7393-004 7393-004 7393-004 7393-004 7393-004	AM C GAM H NI NI_L NP PU PU_L SR TC TH U	R1	12/05/02 11/25/02 12/02/02 11/27/02 12/05/02 12/02/02 12/04/02 12/02/02 12/05/02 11/30/02 02/20/03 12/03/02 11/27/02	12/06/02 12/06/02 12/06/02 12/06/02 12/06/02 12/06/02 12/06/02 12/06/02 12/06/02 12/06/02 02/20/03 12/06/02 12/06/02	MCM MCM MCM MCM MCM MCM MCM MCM MCM MCM MCM MCM MCM MCM MCM MCM MCM	Americium 241 in Soil Carbon 14 in Soil Gamma Scan Tritium in Soil Nickel 59 in Soil Nickel 63 in Soil Neptunium in Soil Plutonium, Isotopic in Solids Plutonium 241 in Soil Total Strontium in Soil Technetium 99 in Soil Thorium, Isotopic in Soil Uranium, Isotopic in Soil	

WORK SUMMARY

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Form DVD-CWS
Version 3.06
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1973

CLIENT SAMPLE ID	LOCATION	CUSTODY	MATRIX	LAB SAMPLE ID		COLLECTED RECEIVED	PLANCHET	TEST	SUF-			METHOD
				SAF No					FIX	ANALYZED	REVIEWED BY	
J006F4	105H B02-037-07	B02-037	SOLID	R211083-01	7393-001	AM	R1	12/05/02	12/06/02	MCM	Americium 241 in Soil	
11/06/02				7393-001	C			11/25/02	12/06/02	MCM	Carbon 14 in Soil	
11/18/02				7393-001	GAM			12/02/02	12/06/02	MCM	Gamma Scan	
				7393-001	H			11/27/02	12/06/02	MCM	Tritium in Soil	
				7393-001	NI			12/04/02	12/06/02	MCM	Nickel 59 in Soil	
				7393-001	NI_L			12/02/02	12/06/02	MCM	Nickel 63 in Soil	
				7393-001	NP			12/04/02	12/06/02	MCM	Neptunium in Soil	
				7393-001	PU			12/02/02	12/06/02	MCM	Plutonium, Isotopic in Solids	
				7393-001	PU_L			12/05/02	12/06/02	MCM	Plutonium 241 in Soil	
				7393-001	SR			11/30/02	12/06/02	MCM	Total Strontium in Soil	
				7393-001	TC			02/20/03	02/20/03	MCM	Technetium 99 in Soil	
				7393-001	TH			12/03/02	12/06/02	MCM	Thorium, Isotopic in Soil	
				7393-001	U			11/27/02	12/06/02	MCM	Uranium, Isotopic in Soil	
J006F6	105H B02-037-08	B02-037	SOLID	R211083-02	7393-002	AM	R1	12/05/02	12/06/02	MCM	Americium 241 in Soil	
11/07/02				7393-002	C			11/25/02	12/06/02	MCM	Carbon 14 in Soil	
11/18/02				7393-002	GAM			12/02/02	12/06/02	MCM	Gamma Scan	
				7393-002	H			11/27/02	12/06/02	MCM	Tritium in Soil	
				7393-002	NI			12/05/02	12/06/02	MCM	Nickel 59 in Soil	
				7393-002	NI_L			12/02/02	12/06/02	MCM	Nickel 63 in Soil	
				7393-002	NP			12/04/02	12/06/02	MCM	Neptunium in Soil	
				7393-002	PU			12/02/02	12/06/02	MCM	Plutonium, Isotopic in Solids	
				7393-002	PU_L			12/05/02	12/06/02	MCM	Plutonium 241 in Soil	
				7393-002	SR			11/30/02	12/06/02	MCM	Total Strontium in Soil	
				7393-002	TC			02/20/03	02/20/03	MCM	Technetium 99 in Soil	
				7393-002	TH			12/03/02	12/06/02	MCM	Thorium, Isotopic in Soil	
				7393-002	U			12/03/02	12/06/02	MCM	Uranium, Isotopic in Soil	

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1973

CLIENT SAMPLE ID LOCATION CUSTODY	MATRIX SAF No	LAB SAMPLE ID		TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
		COLLECTED RECEIVED	PLANCHET						
J006H2 105H B02-037-11	SOLID B02-037	R211083-05	7393-005	AM		12/03/02	12/06/02	MCM	Americium 241 in Soil
			11/11/02	7393-005	C	11/25/02	12/06/02	MCM	Carbon 14 in Soil
			11/18/02	7393-005	GAM	12/02/02	12/06/02	MCM	Gamma Scan
				7393-005	H	11/28/02	12/06/02	MCM	Tritium in Soil
				7393-005	NI	12/04/02	12/06/02	MCM	Nickel 59 in Soil
				7393-005	NI_L	12/02/02	12/06/02	MCM	Nickel 63 in Soil
				7393-005	NP	12/04/02	12/06/02	MCM	Neptunium in Soil
				7393-005	PU	12/02/02	12/06/02	MCM	Plutonium, Isotopic in Solids
				7393-005	PU_L	12/05/02	12/06/02	MCM	Plutonium 241 in Soil
				7393-005	SR	11/30/02	12/06/02	MCM	Total Strontium in Soil
				7393-005	TC	02/18/03	02/20/03	MCM	Technetium 99 in Soil
				7393-005	TH	12/04/02	12/06/02	MCM	Thorium, Isotopic in Soil
				7393-005	U	11/27/02	12/06/02	MCM	Uranium, Isotopic in Soil
J006H4 105H B02-037-12	SOLID B02-037	R211083-06	7393-006	AM	R1	12/05/02	12/06/02	MCM	Americium 241 in Soil
			11/07/02	7393-006	C	11/25/02	12/06/02	MCM	Carbon 14 in Soil
			11/18/02	7393-006	GAM	12/02/02	12/06/02	MCM	Gamma Scan
				7393-006	H	11/28/02	12/06/02	MCM	Tritium in Soil
				7393-006	NI	12/05/02	12/06/02	MCM	Nickel 59 in Soil
				7393-006	NI_L	12/02/02	12/06/02	MCM	Nickel 63 in Soil
				7393-006	NP	12/04/02	12/06/02	MCM	Neptunium in Soil
				7393-006	PU	12/02/02	12/06/02	MCM	Plutonium, Isotopic in Solids
				7393-006	PU_L	12/06/02	12/06/02	MCM	Plutonium 241 in Soil
				7393-006	SR	11/30/02	12/06/02	MCM	Total Strontium in Soil
				7393-006	TC	02/19/03	02/20/03	MCM	Technetium 99 in Soil
				7393-006	TH	12/03/02	12/06/02	MCM	Thorium, Isotopic in Soil
				7393-006	U	11/27/02	12/06/02	MCM	Uranium, Isotopic in Soil

WORK SUMMARY

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SUMMARY DATA SECTION

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Lab id EBRNLNE
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1973

CLIENT SAMPLE ID	LOCATION	CUSTODY	MATRIX	LAB SAMPLE ID		TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
				COLLECTED	RECEIVED						
Method Blank	B02-037		SOLID	R211083-08	7393-008	AM	R1	12/05/02	12/06/02	MCM	Americium 241 in Soil
					7393-008	C		11/25/02	12/06/02	MCM	Carbon 14 in Soil
					7393-008	GAM		12/04/02	12/06/02	MCM	Gamma Scan
					7393-008	H		11/28/02	12/06/02	MCM	Tritium in Soil
					7393-008	NI		12/05/02	12/06/02	MCM	Nickel 59 in Soil
					7393-008	NI_L		12/02/02	12/06/02	MCM	Nickel 63 in Soil
					7393-008	NP		12/04/02	12/06/02	MCM	Neptunium in Soil
					7393-008	PU		12/03/02	12/06/02	MCM	Plutonium, Isotopic in Solids
					7393-008	PU_L		12/06/02	12/06/02	MCM	Plutonium 241 in Soil
					7393-008	SR		11/30/02	12/06/02	MCM	Total Strontium in Soil
Method Blank	B02-037		SOLID	R211083-12	7393-012	TC		02/19/03	02/20/03	MCM	Technetium 99 in Soil
Lab Control Sample	B02-037		SOLID	R211083-07	7393-007	AM	R1	12/05/02	12/06/02	MCM	Americium 241 in Soil
					7393-007	C		11/26/02	12/06/02	MCM	Carbon 14 in Soil
					7393-007	GAM		12/06/02	12/06/02	MCM	Gamma Scan
					7393-007	H		11/28/02	12/06/02	MCM	Tritium in Soil
					7393-007	NI		12/05/02	12/06/02	MCM	Nickel 59 in Soil
					7393-007	NI_L		12/02/02	12/06/02	MCM	Nickel 63 in Soil
					7393-007	NP		12/04/02	12/06/02	MCM	Neptunium in Soil
					7393-007	PU		12/02/02	12/06/02	MCM	Plutonium, Isotopic in Solids
					7393-007	PU_L		12/06/02	12/06/02	MCM	Plutonium 241 in Soil
					7393-007	SR		11/30/02	12/06/02	MCM	Total Strontium in Soil
Lab Control Sample	B02-037		SOLID	R211083-11	7393-011	TC		02/18/03	02/20/03	MCM	Technetium 99 in Soil

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1973

CLIENT SAMPLE ID		LAB SAMPLE ID								
LOCATION	MATRIX	COLLECTED			SUF-					
CUSTODY	SAF No	RECEIVED	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD	
Duplicate (R211083-01)		R211083-09	7393-009	AM	R1	12/05/02	12/06/02	MCM	Americium 241 in Soil	
105H	SOLID	11/06/02	7393-009	C		11/25/02	12/06/02	MCM	Carbon 14 in Soil	
	B02-037	11/18/02	7393-009	GAM		12/02/02	12/06/02	MCM	Gamma Scan	
			7393-009	H		11/28/02	12/06/02	MCM	Tritium in Soil	
			7393-009	NI		12/05/02	12/06/02	MCM	Nickel 59 in Soil	
			7393-009	NI_L		12/02/02	12/06/02	MCM	Nickel 63 in Soil	
			7393-009	NP		12/04/02	12/06/02	MCM	Neptunium in Soil	
			7393-009	PU		12/03/02	12/06/02	MCM	Plutonium, Isotopic in Solids	
			7393-009	PU_L		12/06/02	12/06/02	MCM	Plutonium 241 in Soil	
			7393-009	SR		11/30/02	12/06/02	MCM	Total Strontium in Soil	
			7393-009	TH		12/03/02	12/06/02	MCM	Thorium, Isotopic in Soil	
			7393-009	U		12/03/02	12/06/02	MCM	Uranium, Isotopic in Soil	
Duplicate (R211083-01)		R211083-13	7393-013	TC		02/20/03	02/20/03	MCM	Technetium 99 in Soil	
105H	SOLID	11/06/02								
	B02-037	11/18/02								
Spike (R211083-02)		R211083-10	7393-010	H		11/28/02	12/06/02	MCM	Tritium in Soil	
105H	SOLID	11/07/02								
	B02-037	11/18/02								

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact <u>Melissa C. Mannion</u>

WORK SUMMARY, cont.

Client <u>Hanford</u>
Contract No. <u>630</u>
Case no <u>SDG H1973</u>

COUNTS OF TESTS BY SAMPLE TYPE											
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
AM	B02-037	Americium 241 in Soil	AMCMISO_IE_PLATE_AEA	6		1	1	1			9
C	B02-037	Carbon 14 in Soil	C14_COX_LSC	6		1	1	1			9
GAM	B02-037	Gamma Scan	GAMMA_GS	6		1	1	1			9
H	B02-037	Tritium in Soil	906.0_H3_LSC	6		1	1	1	1		10
NI	B02-037	Nickel 59 in Soil	NI59_GS	6		1	1	1			9
NI_L	B02-037	Nickel 63 in Soil	NI63_LSC	6		1	1	1			9
NP	B02-037	Neptunium in Soil	NP237_LLE_PLATE_AEA	6		1	1	1			9
PU	B02-037	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	6		1	1	1			9
PU_L	B02-037	Plutonium 241 in Soil	PU241_IE_LSC	6		1	1	1			9
SR	B02-037	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	6		1	1	1			9
TC	B02-037	Technetium 99 in Soil	TC99_TR_SEP_LSC	6		1	1	1			9
TH	B02-037	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	6		1	1	1			9
U	B02-037	Uranium, Isotopic in Soil	UIISO_PLATE_AEA	6		1	1	1			9
TOTALS				78		13	13	13	1		118

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E B E R L I N E S E R V I C E S / R I C H M O N D
S A M P L E D E L I V E R Y G R O U P H1973

R211083-08

Method Blank

M E T H O D B L A N K

SDG <u>7393</u> Contact <u>Melissa C. Mannion</u>	Client/Case no <u>Hanford</u> Contract <u>No. 630</u>	SDG <u>H1973</u>
Lab sample id <u>R211083-08</u> Dept sample id <u>7393-008</u>	Client sample id <u>Method Blank</u> Material/Matrix _____ SAF No <u>B02-037</u>	<u>SOLID</u>

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	<u>-0.275</u>	0.16	0.28	400	U	H
Carbon 14	14762-75-5	<u>-0.786</u>	2.9	4.8	50	U	C
Nickel 59	14336-70-0	<u>-0.315</u>	7.0	16	30	U	NI
Nickel 63	13981-37-8	<u>-1.08</u>	1.2	2.2	30	U	NI_L
Total Strontium	SR-RAD	<u>0.162</u>	0.14	0.25	1.0	U	SR
Thorium 228	14274-82-9	<u>0.078</u>	0.091	0.15	U	TH	TH
Thorium 230	14269-63-7	<u>0.084</u>	0.12	0.24	1.0	U	TH
Thorium 232	TH-232	<u>-0.006</u>	0.039	0.079	1.0	U	TH
Uranium 233/234	U-233/234	<u>-0.025</u>	0.019	0.042	1.0	U	U
Uranium 235	15117-96-1	<u>0.004</u>	0.015	0.029	1.0	U	U
Uranium 238	U-238	<u>-0.006</u>	0.012	0.030	1.0	U	U
Neptunium 237	13994-20-2	<u>0.113</u>	0.11	0.084	1.0		NP
Plutonium 241	14119-32-5	<u>0.770</u>	7.6	13	15	U	PU_L
Plutonium 238	13981-16-3	<u>0.006</u>	0.035	0.079	1.0	U	PU
Plutonium 239/240	PU-239/240	<u>0.218</u>	0.071	0.045	1.0		PU
Americium 241	14596-10-2	<u>0</u>	0.059	0.23	1.0	U	AM
Potassium 40	13966-00-2	<u>U</u>		1.1		U	GAM
Cobalt 60	10198-40-0	<u>U</u>		<u>0.053</u>	0.050	U	GAM
Barium 133	13981-41-4	<u>U</u>		<u>0.057</u>		U	GAM
Cesium 137	10045-97-3	<u>U</u>		<u>0.058</u>	0.10	U	GAM
Radium 226	13982-63-3	<u>U</u>		<u>0.12</u>		U	GAM
Radium 228	15262-20-1	<u>U</u>		<u>0.25</u>		U	GAM
Europium 152	14683-23-9	<u>U</u>		<u>0.15</u>	0.10	U	GAM
Europium 154	15585-10-1	<u>U</u>		<u>0.19</u>	0.10	U	GAM
Europium 155	14391-16-3	<u>U</u>		<u>0.17</u>	0.10	U	GAM
Thorium 228	14274-82-9	<u>U</u>		<u>0.074</u>		U	GAM
Thorium 232	TH-232	<u>U</u>		<u>0.25</u>		U	GAM
Uranium 235	15117-96-1	<u>U</u>		<u>0.27</u>		U	GAM
Uranium 238	U-238	<u>U</u>		<u>8.1</u>		U	GAM

105H Rx FSB Fill/Sludge Sampling

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

R211083-08

Method Blank

BLANK, cont.

SDG <u>7393</u>	Client/Case no <u>Hanford</u>	SDG <u>H1973</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R211083-08</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7393-008</u>	Material/Matrix <u></u>	<u>SOLID</u>
	SAF No <u>E02-037</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Americium 241	14596-10-2	U		0.35		U	GAM

105H Rx FSB Fill/Sludge Sampling

QC-BLANK 43216

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Version Ver 1.0
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Version 3.06
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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

R211083-12

Method Blank

METHOD BLANK

SDG 7393
Contact Melissa C. Mannion

Client/Case no Hanford
Contract No. 630

Lab sample id R211083-12
Dept sample id 7393-012

Client sample id Method Blank
Material/Matrix SOLID
SAF No B02-037

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Technetium 99	14133-76-7	-0.110	0.16	0.53	15	U	TC

105H Rx FSB Fill/Sludge Sampling

QC-BLANK 43850

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Protocol Hanford
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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

R211083-07

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7393</u> Contact <u>Melissa C. Mannion</u>	Client/Case no <u>Hanford</u> Contract No. <u>630</u>	SDG <u>H1973</u>
Lab sample id <u>R211083-07</u> Dept sample id <u>7393-007</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix _____	SAF No <u>B02-037</u> <u>SOLID</u>

ANALYTE	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2 σ ERR pCi/g	REC %	3 σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	10.7	0.40	0.28	400		H	11.1	0.44	96	83-117	80-120
Carbon 14	2450	25	6.3	50		C	2730	110	90	85-115	80-120
Nickel 59	97.6	7.9	13	30		NI	102	4.1	96	81-119	80-120
Nickel 63	226	4.3	2.2	30		NI_L	230	9.2	98	84-116	80-120
Total Strontium	22.6	0.94	0.29	1.0		SR	21.3	0.85	106	82-118	80-120
Thorium 230	40.8	1.8	0.24	1.0		TH	40.8	1.6	100	88-112	80-120
Uranium 233/234	18.6	1.9	0.96	1.0		U	18.6	0.74	100	82-118	80-120
Uranium 235	16.2	1.8	0.23	1.0		U	15.1	0.60	107	80-120	80-120
Uranium 238	20.1	2.0	0.92	1.0		U	20.2	0.81	100	82-118	80-120
Neptunium 237	20.3	2.1	0.14	1.0		NP	19.9	0.80	102	81-119	80-120
Plutonium 241	195	7.6	7.7	15		PU_L	210	8.4	93	89-111	80-120
Plutonium 238	23.9	1.7	0.15	1.0		PU	24.4	0.98	98	86-114	80-120
Plutonium 239/240	25.8	1.8	0.15	1.0	B	PU	26.4	1.1	98	86-114	80-120
Americium 241	20.1	2.3	0.26	1.0		AM	19.1	0.76	105	79-121	80-120
Cobalt 60	4.43	0.49	0.20	0.050		GAM	4.28	0.17	104	70-130	80-120
Cesium 137	5.63	0.46	0.30	0.10		GAM	5.55	0.22	101	73-127	80-120

105H Rx FSB Fill/Sludge Sampling

QC-LCS 43215

LAB CONTROL SAMPLES

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Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

R211083-11

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7393	Client/Case no Hanford	SDG H1973
Contact Melissa C. Mannion	Contract No. 630	
Lab sample id R211083-11	Client sample id Lab Control Sample	
Dept sample id 7393-011	Material/Matrix	SOLID
	SAF No B02-037	

ANALYTE	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2 σ ERR pCi/g	REC %	3 σ LMTS (TOTAL)	PROTOCOL LIMITS
Technetium 99	119	3.4	0.57	15		TC	109	4.4	109	82-118	80-120

105H Rx FSB Fill/Sludge Sampling

QC-LCS 43849

LAB CONTROL SAMPLES

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

R211083-09

J006F4

DUPLICATE

SDG <u>7393</u>	Client/Case no <u>Hanford</u>	SDG H1973
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
DUPPLICATE	ORIGINAL	
Lab sample id <u>R211083-09</u>	Lab sample id <u>R211083-01</u>	Client sample id <u>J006F4</u>
Dept sample id <u>7393-009</u>	Dept sample id <u>7393-001</u>	Location/Matrix <u>105H</u> <u>SOLID</u>
Received <u>11/18/02</u>	% solids <u>83.4</u>	Collected/Weight <u>11/06/02 14:21</u> <u>1434 g</u>
% solids <u>83.4</u>		Custody/SAF No <u>B02-037-07</u> <u>B02-037</u>

ANALYTE	DUPLICATE	2 σ ERR	MDA	RDL	QUALI-	TEST	ORIGINAL	2 σ ERR	MDA	QUALI-	RPD	3 σ	PROT
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS		pCi/g	(COUNT)	pCi/g	FIERS	%	TOT	LIMIT
Tritium	93.1	0.94	0.21	400		H	71.8	0.76	0.18		26	22	
Carbon 14	2300	16	3.9	50		C	1770	13	3.5		26	21	
Nickel 59	179	24	21	30	X	NI	162	22	17	X	10	36	
Nickel 63	18500	190	12	30		NI_L	18300	180	12		1	21	
Total Strontium	1120	6.1	0.27	1.0		SR	1140	6.3	0.29		2	21	
Thorium 228	0.704	0.14	0.076			TH	0.636	0.14	0.14		10	46	
Thorium 230	0.530	0.15	0.21	1.0		TH	0.568	0.14	0.21		7	57	
Thorium 232	0.570	0.12	0.052	1.0		TH	0.551	0.12	0.044		3	47	
Uranium 233/234	2.80	0.20	0.043	1.0		U	3.26	0.58	0.17		15	32	
Uranium 235	0.128	0.044	0.028	1.0		U	0.136	0.11	0.21	U	6	135	
Uranium 238	2.37	0.18	0.037	1.0		U	1.98	0.42	0.17		18	33	
Neptunium 237	0	0.075	0.11	1.0	U	NP	0	0.13	0.20	U	-	-	
Plutonium 241	597	23	19	15		PU_L	612	23	18		2	13	
Plutonium 238	15.5	0.67	0.080	1.0		PU	14.8	1.4	0.19		5	19	
Plutonium 239/240	433	10	0.076	1.0	B	PU	428	23	0.19	B	1	14	
Americium 241	156	17	0.43	1.0		AM	154	14	0.32		1	24	
Potassium 40	U		12		U	GAM	U		16	U	-	-	
Cobalt 60	312	2.9	2.6	0.050		GAM	351	2.8	2.5		12	32	
Barium 133	U		2.2		U	GAM	U		1.9	U	-	-	
Cesium 137	1770	5.0	4.3	0.10		GAM	2080	4.0	2.1		16	32	
Radium 226	U		3.5		U	GAM	U		3.1	U	-	-	
Radium 228	U		7.9		U	GAM	U		7.5	U	-	-	
Europium 152	1860	9.0	8.9	0.10		GAM	2020	7.0	6.8		8	32	
Europium 154	217	7.2	7.3	0.10		GAM	233	5.9	6.5		7	32	
Europium 155	U		4.8	0.10	U	GAM	U		6.7	U	-	-	
Thorium 228	U		2.5		U	GAM	U		2.3	U	-	-	
Thorium 232	U		7.9		U	GAM	U		7.5	U	-	-	
Uranium 235	U		6.7		U	GAM	U		6.0	U	-	-	

105H Rx FSB Fill/Sludge Sampling

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

R211083-09

J006F4

DUPLICATE, cont.

SDG 7393	Client/Case no Hanford	SDG H1973
Contact Melissa C. Mannion	Contract No. 630	
DUPPLICATE	ORIGINAL	
Lab sample id R211083-09	Lab sample id R211083-01	Client sample id J006F4
Dept sample id 7393-009	Dept sample id 7393-001	Location/Matrix 105H
% solids 83.4	Received 11/18/02	Collected/Weight 11/06/02 14:21 1434 g
	% solids 83.4	Custody/SAF No B02-037-07 B02-037

ANALYTE	DUPPLICATE	2 σ ERR	MDA	RDL	QUALI-	ORIGINAL	2 σ ERR	MDA	QUALI-	RPD	3 σ PROT	
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS	TEST	pCi/g	(COUNT)	pCi/g	FIERS	%	TOT LIMIT
Uranium 238	U	250			U	GAM	U		240	U	-	
Americium 241	U	45			U	GAM	U		95	U	-	

105H Rx FSB Fill/Sludge Sampling

QC-DUP#1 43217

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

R211083-13

J006F4

DUPLICATE

SDG <u>7393</u>	Client/Case no <u>Hanford</u>	SDG <u>H1973</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R211083-13</u>	Lab sample id <u>R211083-01</u>	Client sample id <u>J006F4</u>
Dept sample id <u>7393-013</u>	Dept sample id <u>7393-001</u>	Location/Matrix <u>105H</u>
Received <u>11/18/02</u>	% solids <u>83.4</u>	Collected/Weight <u>11/06/02 14:21</u> <u>1434 g</u>
		Custody/SAF No <u>B02-037-07</u> <u>B02-037</u>

ANALYTE	DUPLICATE	2 σ ERR	MDA	RDL	QUALI-	ORIGINAL	2 σ ERR	MDA	QUALI-	RPD	3 σ	PROT
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS	TEST	pCi/g	(COUNT)	pCi/g	FIERS	%	TOT LIMIT
Technetium 99	1.42	0.78	2.5	15	U	TC	1.35	0.71	1.7	U	-	

105H Rx FSB Fill/Sludge Sampling

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Report date <u>02/20/03</u>

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

R211083-10

J006F6

MATRIX SPIKE

SDG <u>7393</u>	Client/Case no <u>Hanford</u>	SDG H1973
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
ORIGINAL		
MATRIX SPIKE	Lab sample id <u>R211083-02</u>	Client sample id <u>J006F6</u>
Lab sample id <u>R211083-10</u>	Dept sample id <u>7393-002</u>	Location/Matrix <u>105H</u> <u>SOLID</u>
Dept sample id <u>7393-010</u>	Received <u>11/18/02</u>	Collected/Weight <u>11/07/02 10:35</u> <u>1012 g</u>
% solids <u>86.2</u>	% solids <u>86.2</u>	Custody/SAF No <u>B02-037-08</u> <u>B02-037</u>

ANALYTE	SPIKE	2 σ ERR	MDA	RDL	QUALI-	ADDED	2 σ ERR	ORIGINAL	2 σ ERR	REC 3 σ LMTS	PROTOCOL
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS TEST	pCi/g	pCi/g	pCi/g	(COUNT)	% (TOTAL)	LIMITS
Tritium	132	1.3	0.26	400	X H	46.5	1.9	104	1.1	60	45-155 60-140

105H Rx FSB Fill/Sludge Sampling

QC-MS#2 43218

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-MS</u>
Version <u>3.06</u>
Report date <u>02/20/03</u>

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H1973

R211083-01

J006F4

D A T A S H E E T

SDG <u>7393</u>	Client/Case no <u>Hanford</u>	SDG <u>H1973</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R211083-01</u>	Client sample id <u>J006F4</u>	
Dept sample id <u>7393-001</u>	Location/Matrix <u>105H</u>	<u>SOLID</u>
Received <u>11/18/02</u>	Collected/Weight <u>11/06/02 14:21</u>	<u>1434 g</u>
% solids <u>83.4</u>	Custody/SAF No <u>B02-037-07</u>	<u>B02-037</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	71.8	0.76	0.18	400		H
Carbon 14	14762-75-5	1770	13	3.5	50		C
Nickel 59	14336-70-0	162	22	17	30	X	NI
Nickel 63	13981-37-8	18300	180	12	30		NI_L
Total Strontium	SR-RAD	1140	6.3	0.29	1.0		SR
Technetium 99	14133-76-7	1.35	0.71	1.7	15	U	TC
Thorium 228	14274-82-9	0.636	0.14	0.14			TH
Thorium 230	14269-63-7	0.568	0.14	0.21	1.0		TH
Thorium 232	TH-232	0.551	0.12	0.044	1.0		TH
Uranium 233/234	U-233/234	3.26	0.58	0.17	1.0		U
Uranium 235	15117-96-1	0.136	0.11	0.21	1.0	U	U
Uranium 238	U-238	1.98	0.42	0.17	1.0		U
Neptunium 237	13994-20-2	0	0.13	0.20	1.0	U	NP
Plutonium 241	14119-32-5	612	23	18	15		PU_L
Plutonium 238	13981-16-3	14.8	1.4	0.19	1.0		PU
Plutonium 239/240	PU-239/240	428	23	0.19	1.0	B	PU
Americium 241	14596-10-2	154	14	0.32	1.0		AM
Potassium 40	13966-00-2	U		16		U	GAM
Cobalt 60	10198-40-0	351	2.8	2.5	0.050		GAM
Barium 133	13981-41-4	U		1.9		U	GAM
Cesium 137	10045-97-3	2080	4.0	2.1	0.10		GAM
Radium 226	13982-63-3	U		3.1		U	GAM
Radium 228	15262-20-1	U		7.5		U	GAM
Europium 152	14683-23-9	2020	7.0	6.8	0.10		GAM
Europium 154	15585-10-1	233	5.9	6.5	0.10		GAM
Europium 155	14391-16-3	U		6.7	0.10	U	GAM
Thorium 228	14274-82-9	U		2.3		U	GAM
Thorium 232	TH-232	U		7.5		U	GAM

105H Rx FSB Fill/Sludge Sampling

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/20/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

R211083-01

J006F4

DATA SHEET, cont

SDG <u>7393</u>	Client/Case no <u>Hanford</u>	<u>SDG_H1973</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R211083-01</u>	Client sample id <u>J006F4</u>	
Dept sample id <u>7393-001</u>	Location/Matrix <u>105H</u>	<u>SOLID</u>
Received <u>11/18/02</u>	Collected/Weight <u>11/06/02 14:21</u>	<u>1434 g</u>
% solids <u>83.4</u>	Custody/SAF No <u>B02-037-07</u>	<u>B02-037</u>

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 235	15117-96-1	U		6.0		U	GAM
Uranium 238	U-238	U		240		U	GAM
Americium 241	14596-10-2	U		95		U	GAM

105H RX FSB Fill/Sludge Sampling

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/20/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

R211083-02

J006F6

DATA SHEET

SDG <u>7393</u>	Client/Case no <u>Hanford</u>	SDG <u>H1973</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R211083-02</u>	Client sample id <u>J006F6</u>	
Dept sample id <u>7393-002</u>	Location/Matrix <u>105H</u>	<u>SOLID</u>
Received <u>11/18/02</u>	Collected/Weight <u>11/07/02 10:35</u>	<u>1012 g</u>
% solids <u>86.2</u>	Custody/SAF No <u>B02-037-08</u>	<u>B02-037</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	104	1.1	0.23	400		H
Carbon 14	14762-75-5	10800	110	11	50		C
Nickel 59	14336-70-0	433	53	15	30	X	NI
Nickel 63	13981-37-8	51000	510	22	30		NI_L
Total Strontium	SR-RAD	5060	14	0.30	1.0		SR
Technetium 99	14133-76-7	2.99	0.91	2.1	15		TC
Thorium 228	14274-82-9	0.645	0.12	0.047			TH
Thorium 230	14269-63-7	0.550	0.15	0.22	1.0		TH
Thorium 232	TH-232	0.538	0.12	0.058	1.0		TH
Uranium 233/234	U-233/234	5.88	0.31	0.067	1.0		U
Uranium 235	15117-96-1	0.394	0.076	0.029	1.0		U
Uranium 238	U-238	5.26	0.28	0.059	1.0		U
Neptunium 237	13994-20-2	0.029	0.12	0.22	1.0	U	NP
Plutonium 241	14119-32-5	1180	40	22	15		PU_L
Plutonium 238	13981-16-3	33.6	2.2	0.15	1.0		PU
Plutonium 239/240	PU-239/240	844	39	0.15	1.0	B	PU
Americium 241	14596-10-2	251	24	0.34	1.0		AM
Potassium 40	13966-00-2	U		23		U	GAM
Cobalt 60	10198-40-0	1470	4.0	2.5	0.050		GAM
Barium 133	13981-41-4	U		3.4		U	GAM
Cesium 137	10045-97-3	6370	7.0	3.1	0.10		GAM
Radium 226	13982-63-3	U		5.4		U	GAM
Radium 228	15262-20-1	U		13		U	GAM
Europium 152	14683-23-9	6230	13	12	0.10		GAM
Europium 154	15585-10-1	1040	10	10	0.10		GAM
Europium 155	14391-16-3	U		73	0.10	U	GAM
Thorium 228	14274-82-9	U		4.2		U	GAM
Thorium 232	TH-232	U		13		U	GAM

105H Rx FSB Fill/Sludge Sampling

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
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Version <u>3.06</u>
Report date <u>02/20/03</u>

E B E R L I N E S E R V I C E S / R I C H M O N D
S A M P L E D E L I V E R Y G R O U P H1973

R211083-02

J006F6

D A T A S H E E T , c o n t

<u>SDG 7393</u>	<u>Client/Case no Hanford</u>	<u>SDG H1973</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R211083-02</u>	Client sample id <u>J006F6</u>	
Dept sample id <u>7393-002</u>	Location/Matrix <u>105H</u>	<u>SOLID</u>
Received <u>11/18/02</u>	Collected/Weight <u>11/07/02 10:35</u>	<u>1012 g</u>
% solids <u>86.2</u>	Custody/SAF No <u>B02-037-08</u>	<u>B02-037</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 235	15117-96-1	U		11		U	GAM
Uranium 238	U-238	U		420		U	GAM
Americium 241	14596-10-2	U		96		U	GAM

105H Rx FSB Fill/Sludge Sampling

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/20/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

R211083-03

J006F8

DATA SHEET

SDG <u>7393</u>	Client/Case no <u>Hanford</u>	SDG <u>H1973</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R211083-03</u>	Client sample id <u>J006F8</u>	
Dept sample id <u>7393-003</u>	Location/Matrix <u>105H</u>	<u>SOLID</u>
Received <u>11/18/02</u>	Collected/Weight <u>11/07/02 13:32</u>	<u>1249 g</u>
% solids <u>81.2</u>	Custody/SAF No <u>B02-037-09</u>	<u>B02-037</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	105	1.1	0.22	400		H
Carbon 14	14762-75-5	634	8.1	3.6	50		C
Nickel 59	14336-70-0	23.3	7.4	13	30	X	NI
Nickel 63	13981-37-8	2670	27	4.4	30		NI_L
Total Strontium	SR-RAD	691	5.0	0.28	1.0		SR
Technetium 99	14133-76-7	0.556	1.0	1.8	15	U	TC
Thorium 228	14274-82-9	0.754	0.14	0.084			TH
Thorium 230	14269-63-7	0.610	0.15	0.21	1.0		TH
Thorium 232	TH-232	0.714	0.13	0.044	1.0		TH
Uranium 233/234	U-233/234	0.540	0.24	0.18	1.0		U
Uranium 235	15117-96-1	0.057	0.057	0.22	1.0	U	U
Uranium 238	U-238	0.564	0.24	0.18	1.0		U
Neptunium 237	13994-20-2	0	0.11	0.16	1.0	U	NP
Plutonium 241	14119-32-5	112	7.8	9.8	15		PU_L
Plutonium 238	13981-16-3	3.47	0.58	0.16	1.0		PU
Plutonium 239/240	PU-239/240	71.7	4.2	0.16	1.0	B	PU
Americium 241	14596-10-2	27.0	3.6	0.41	1.0		AM
Potassium 40	13966-00-2	U		5.2		U	GAM
Cobalt 60	10198-40-0	104	1.2	0.82	0.050		GAM
Barium 133	13981-41-4	U		1.2		U	GAM
Cesium 137	10045-97-3	1420	3.0	1.7	0.10		GAM
Radium 226	13982-63-3	U		1.8		U	GAM
Radium 228	15262-20-1	U		3.4		U	GAM
Europium 152	14683-23-9	506	4.1	4.3	0.10		GAM
Europium 154	15585-10-1	82.4	2.9	2.6	0.10		GAM
Europium 155	14391-16-3	U		3.3	0.10	U	GAM
Thorium 228	14274-82-9	U		1.3		U	GAM
Thorium 232	TH-232	U		3.4		U	GAM

105H Rx FSB Fill/Sludge Sampling

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/20/03</u>

E B E R L I N E S E R V I C E S / R I C H M O N D
S A M P L E D E L I V E R Y G R O U P H1973

R211083-03

J006F8

D A T A S H E E T , c o n t

SDG <u>7393</u>	Client/Case no <u>Hanford</u>	SDG <u>H1973</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R211083-03</u>	Client sample id <u>J006F8</u>	
Dept sample id <u>7393-003</u>	Location/Matrix <u>105H</u>	<u>SOLID</u>
Received <u>11/18/02</u>	Collected/Weight <u>11/07/02 13:32</u>	<u>1249 g</u>
% solids <u>81.2</u>	Custody/SAF No <u>B02-037-09</u>	<u>B02-037</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 235	15117-96-1	U		4.2		U	GAM
Uranium 238	U-238	U		130		U	GAM
Americium 241	14596-10-2	U		21		U	GAM

105H Rx FSB Fill/Sludge Sampling

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/20/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

R211083-04

J006H0

DATA SHEET

SDG <u>7393</u>	Client/Case no <u>Hanford</u>	SDG <u>H1973</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R211083-04</u>	Client sample id <u>J006H0</u>	
Dept sample id <u>7393-004</u>	Location/Matrix <u>105H</u>	<u>SOLID</u>
Received <u>11/18/02</u>	Collected/Weight <u>11/11/02 13:04</u>	<u>948.5 g</u>
% solids <u>86.0</u>	Custody/SAF No <u>B02-037-10</u>	<u>B02-037</u>

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	82.0	0.83	0.18	400		H
Carbon 14	14762-75-5	710	8.6	3.6	50		C
Nickel 59	14336-70-0	26.3	7.8	14	30	X	NI
Nickel 63	13981-37-8	2640	26	4.4	30		NI_L
Total Strontium	SR-RAD	2330	9.1	0.29	1.0		SR
Technetium 99	14133-76-7	0.381	0.77	2.1	15	U	TC
Thorium 228	14274-82-9	0.709	0.13	0.078			TH
Thorium 230	14269-63-7	0.450	0.14	0.25	1.0		TH
Thorium 232	TH-232	0.586	0.12	0.052	1.0		TH
Uranium 233/234	U-233/234	1.09	0.33	0.15	1.0		U
Uranium 235	15117-96-1	0.147	0.098	0.19	1.0	U	U
Uranium 238	U-238	1.23	0.33	0.15	1.0		U
Neptunium 237	13994-20-2	-0.063	0.13	0.48	1.0	U	NP
Plutonium 241	14119-32-5	475	16	12	15		PU_L
Plutonium 238	13981-16-3	12.1	1.0	0.13	1.0		PU
Plutonium 239/240	PU-239/240	257	11	0.13	1.0	B	PU
Americium 241	14596-10-2	121	11	0.31	1.0		AM
Potassium 40	13966-00-2	36.2	3.8	3.6			GAM
Cobalt 60	10198-40-0	89.0	0.99	<u>0.65</u>	0.050		GAM
Barium 133	13981-41-4	U		1.7		U	GAM
Cesium 137	10045-97-3	3080	4.0	<u>1.5</u>	0.10		GAM
Radium 226	13982-63-3	U		2.1		U	GAM
Radium 228	15262-20-1	U		3.5		U	GAM
Europium 152	14683-23-9	491	4.6	<u>4.9</u>	0.10		GAM
Europium 154	15585-10-1	60.3	2.2	<u>2.1</u>	0.10		GAM
Europium 155	14391-16-3	U		<u>3.0</u>	0.10	U	GAM
Thorium 228	14274-82-9	U		1.8		U	GAM
Thorium 232	TH-232	U		3.5		U	GAM

105H Rx FSB Fill/Sludge Sampling

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
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Version <u>3.06</u>
Report date <u>02/20/03</u>

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H1973

R211083-04

J006H0

D A T A S H E E T , c o n t

SDG <u>7393</u>	Client/Case no <u>Hanford</u>	SDG <u>H1973</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R211083-04</u>	Client sample id <u>J006H0</u>	
Dept sample id <u>7393-004</u>	Location/Matrix <u>105H</u>	<u>SOLID</u>
Received <u>11/18/02</u>	Collected/Weight <u>11/11/02 13:04</u>	<u>948.5 g</u>
% solids <u>86.0</u>	Custody/SAF No <u>B02-037-10</u>	<u>B02-037</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 235	15117-96-1	U		4.6		U	GAM
Uranium 238	U-238	U		130		U	GAM
Americium 241	14596-10-2	U		39		U	GAM

105H Rx FSB Fill/Sludge Sampling

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/20/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

R211083-05

J006H2

DATA SHEET

SDG <u>7393</u>	Client/Case no <u>Hanford</u>	SDG <u>H1973</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R211083-05</u>	Client sample id <u>J006H2</u>	
Dept sample id <u>7393-005</u>	Location/Matrix <u>105H</u>	<u>SOLID</u>
Received <u>11/18/02</u>	Collected/Weight <u>11/11/02 10:35</u>	<u>1408 g</u>
% solids <u>81.1</u>	Custody/SAF No <u>B02-037-11</u>	<u>B02-037</u>

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	35.1	0.55	0.19	400		H
Carbon 14	14762-75-5	1730	18	5.4	50		C
Nickel 59	14336-70-0	17.0	5.5	7.6	30	X	NI
Nickel 63	13981-37-8	2910	29	4.6	30		NI_L
Total Strontium	SR-RAD	967	5.6	0.25	1.0		SR
Technetium 99	14133-76-7	0.132	0.87	2.8	15	U	TC
Thorium 228	14274-82-9	0.316	0.27	0.35		U	TH
Thorium 230	14269-63-7	0.807	0.37	0.34	1.0		TH
Thorium 232	TH-232	0.628	0.36	0.34	1.0		TH
Uranium 233/234	U-233/234	0.875	0.30	0.16	1.0		U
Uranium 235	15117-96-1	0.050	0.051	0.19	1.0	U	U
Uranium 238	U-238	0.792	0.25	0.16	1.0		U
Neptunium 237	13994-20-2	0	0.070	0.27	1.0	U	NP
Plutonium 241	14119-32-5	162	9.5	11	15		PU_L
Plutonium 238	13981-16-3	4.99	0.70	0.17	1.0		PU
Plutonium 239/240	PU-239/240	108	5.9	0.17	1.0	B	PU
Americium 241	14596-10-2	69.5	5.7	0.086	1.0		AM
Potassium 40	13966-00-2	U		7.4		U	GAM
Cobalt 60	10198-40-0	121	1.6	1.1	0.050		GAM
Barium 133	13981-41-4	U		1.6		U	GAM
Cesium 137	10045-97-3	1470	4.0	2.3	0.10		GAM
Radium 226	13982-63-3	U		2.3		U	GAM
Radium 228	15262-20-1	U		4.7		U	GAM
Europium 152	14683-23-9	730	6.0	5.9	0.10		GAM
Europium 154	15585-10-1	104	3.7	3.4	0.10		GAM
Europium 155	14391-16-3	U		4.3	0.10	U	GAM
Thorium 228	14274-82-9	U		1.6		U	GAM
Thorium 232	TH-232	U		4.7		U	GAM

105H Rx FSB Fill/Sludge Sampling

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

R211083-05

J006H2

DATA SHEET, cont

SDG <u>7393</u>	Client/Case no <u>Hanford</u>	<u>SDG H1973</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R211083-05</u>	Client sample id <u>J006H2</u>	
Dept sample id <u>7393-005</u>	Location/Matrix <u>105H</u>	<u>SOLID</u>
Received <u>11/18/02</u>	Collected/Weight <u>11/11/02 10:35</u>	<u>1408 g</u>
% solids <u>81.1</u>	Custody/SAF No <u>B02-037-11</u>	<u>B02-037</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 235	15117-96-1	U		5.5		U	GAM
Uranium 238	U-238	U		170		U	GAM
Americium 241	14596-10-2	U		27		U	GAM

105H Rx FSB Fill/Sludge Sampling

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

R211083-06

J006H4

DATA SHEET

SDG <u>7393</u>	Client/Case no <u>Hanford</u>	SDG <u>H1973</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R211083-06</u>	Client sample id <u>J006H4</u>	
Dept sample id <u>7393-006</u>	Location/Matrix <u>105H</u>	<u>SOLID</u>
Received <u>11/18/02</u>	Collected/Weight <u>11/07/02 13:32</u>	<u>1341 g</u>
% solids <u>80.4</u>	Custody/SAF No <u>B02-037-12</u>	<u>B02-037</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	106	1.1	0.23	400		H
Carbon 14	14762-75-5	754	9.9	4.4	50		C
Nickel 59	14336-70-0	20.0	5.7	9.0	30	X	NI
Nickel 63	13981-37-8	2300	23	4.1	30		NI_L
Total Strontium	SR-RAD	581	4.5	0.28	1.0		SR
Technetium 99	14133-76-7	0.442	0.84	2.5	15	U	TC
Thorium 228	14274-82-9	0.574	0.17	0.21			TH
Thorium 230	14269-63-7	0.598	0.18	0.25	1.0		TH
Thorium 232	TH-232	0.550	0.13	0.053	1.0		TH
Uranium 233/234	U-233/234	0.876	0.26	0.16	1.0		U
Uranium 235	15117-96-1	0.026	0.052	0.20	1.0	U	U
Uranium 238	U-238	0.577	0.22	0.16	1.0		U
Neptunium 237	13994-20-2	0	0.079	0.12	1.0	U	NP
Plutonium 241	14119-32-5	108	7.2	9.0	15		PU_L
Plutonium 238	13981-16-3	3.32	0.51	0.14	1.0		PU
Plutonium 239/240	PU-239/240	70.4	3.9	0.14	1.0	B	PU
Americium 241	14596-10-2	22.4	2.9	0.34	1.0		AM
Potassium 40	13966-00-2	35.1	5.2	5.5			GAM
Cobalt 60	10198-40-0	103	1.1	0.71	0.050		GAM
Barium 133	13981-41-4	U		1.0		U	GAM
Cesium 137	10045-97-3	1380	3.0	1.3	0.10		GAM
Radium 226	13982-63-3	U		1.4		U	GAM
Radium 228	15262-20-1	U		3.0		U	GAM
Europium 152	14683-23-9	512	3.5	3.5	0.10		GAM
Europium 154	15585-10-1	77.9	2.2	2.2	0.10		GAM
Europium 155	14391-16-3	U		2.6	0.10	U	GAM
Thorium 228	14274-82-9	U		1.2		U	GAM
Thorium 232	TH-232	U		3.0		U	GAM

105H Rx FSB Fill/Sludge Sampling

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

R211083-06

J006H4

DATA SHEET, cont

SDG <u>7393</u>	Client/Case no <u>Hanford</u>	SDG <u>H1973</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R211083-06</u>	Client sample id <u>J006H4</u>	
Dept sample id <u>7393-006</u>	Location/Matrix <u>105H</u>	<u>SOLID</u>
Received <u>11/18/02</u>	Collected/Weight <u>11/07/02 13:32</u>	<u>1341 g</u>
% solids <u>80.4</u>	Custody/SAF No <u>B02-037-12</u>	<u>B02-037</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 235	15117-96-1	U		3.1		U	GAM
Uranium 238	U-238	U		97		U	GAM
Americium 241	14596-10-2	U		22		U	GAM

105H RX FSB Fill/Sludge Sampling

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

Test AM	Matrix SOLID
SDG 7393	
Contact	Melissa C. Mannion

METHOD SUMMARY
AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1973

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA PLANCHET	Americium 241
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Preparation batch 7052-062

J006F4	R211083-01	R1	7393-001	154
J006F6	R211083-02	R1	7393-002	251
J006F8	R211083-03	R1	7393-003	27.0
J006H0	R211083-04	R1	7393-004	121
J006H2	R211083-05		7393-005	69.5
J006H4	R211083-06	R1	7393-006	22.4
BLK (QC ID=43216)	R211083-08	R1	7393-008	U
LCS (QC ID=43215)	R211083-07	R1	7393-007	ok
Duplicate (R211083-01)	R211083-09	R1	7393-009	ok

Nominal values and limits from method 105H Rx FSB Fill/Sludge Sampling	RDLs (pCi/g)	1.0
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METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD PREPARED	ANAL- YZED	DETECTOR
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Preparation batch 7052-062 2σ prep error 5.0 % Reference Lab Notebook 7052 pg. 062

J006F4	R211083-01	R1	0.32	0.500		66	109			29	12/02/02	12/05	SS-011
J006F6	R211083-02	R1	0.34	0.500		61	110			28	12/02/02	12/05	SS-033
J006F8	R211083-03	R1	0.41	0.500		52	113			28	12/02/02	12/05	SS-042
J006H0	R211083-04	R1	0.31	0.500		61	113			24	12/02/02	12/05	SS-043
J006H2	R211083-05		0.086	0.500		36	980			22	12/02/02	12/03	SS-059
J006H4	R211083-06	R1	0.34	0.500		58	113			28	12/02/02	12/05	SS-047
BLK (QC ID=43216)	R211083-08	R1	0.23	0.500		95	114				12/02/01	12/05	SS-050
LCS (QC ID=43215)	R211083-07	R1	0.26	0.500		73	114				12/02/01	12/05	SS-048
Duplicate (R211083-01) (QC ID=43217)	R211083-09	R1	0.43	0.500		52	112			29	12/02/02	12/05	SS-022

Nominal values and limits from method	1.0	0.500	20-105	100	100	180
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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

Test AM Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

METHOD SUMMARY, cont.
AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1973

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
CP-060		Soil Preparation, rev 4
CP-071		Soil Dissolution, > 1.0g Aliquot, rev 2
CP-963		Americium and Curium in Water and Dissolved Samples by Extraction Chromatography, rev 3
CP-008		Heavy Element Electroplating, rev 7

AVERAGES \pm 2 SD FOR 9 SAMPLES	MDA <u>0.30</u> \pm <u>0.21</u>
	YIELD <u>62</u> \pm <u>33</u>

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

Test <u>NP</u>	Matrix <u>SOLID</u>
SDG <u>7393</u>	
Contact <u>Melissa C. Mannion</u>	

METHOD SUMMARY
NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client <u>Hanford</u>
Contract No. <u>630</u>
Contract SDG H1973

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	Neptunium PLANCHET	Neptunium 237
Preparation batch 7052-062					
J006F4	R211083-01		7393-001	U	
J006F6	R211083-02		7393-002	U	
J006F8	R211083-03		7393-003	U	
J006H0	R211083-04		7393-004	U	
J006H2	R211083-05		7393-005	U	
J006H4	R211083-06		7393-006	U	
BLK (QC ID=43216)	R211083-08		7393-008	<u>0.113</u>	
LCS (QC ID=43215)	R211083-07		7393-007	ok	
Duplicate (R211083-01)	R211083-09		7393-009	-	U
Nominal values and limits from method		RDLS (pCi/g)		1.0	
105H Rx FSB Fill/Sludge Sampling					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD PREPARED	ANAL- YZED	DETECTOR	
Preparation batch 7052-062 2σ prep error 5.0 % Reference Lab Notebook 7052 pg. 062																
J006F4	R211083-01			0.20	0.500			35	117				28	12/04/02	12/04	SS-032
J006F6	R211083-02			0.22	0.500			82	117				27	12/04/02	12/04	SS-039
J006F8	R211083-03			0.16	0.500			50	117				27	12/04/02	12/04	SS-042
J006H0	R211083-04			0.48	0.500			39	117				23	12/04/02	12/04	SS-047
J006H2	R211083-05			0.27	0.500			70	117				23	12/04/02	12/04	SS-048
J006H4	R211083-06			0.12	0.500			69	117				27	12/04/02	12/04	SS-050
BLK (QC ID=43216)	R211083-08			0.084	0.500			96	117					12/04/02	12/04	SS-059
LCS (QC ID=43215)	R211083-07			0.14	0.500			52	117					12/04/02	12/04	SS-055
Duplicate (R211083-01) (QC ID=43217)	R211083-09			0.11	0.500			64	117				28	12/04/02	12/04	SS-060
Nominal values and limits from method				1.0	0.500			20-105	100					180		

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

Test NP Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

METHOD SUMMARY, cont.

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1973

PROCEDURES REFERENCE NP237_LLE_PLATE_AEA
CP-060 Soil Preparation, rev 4
CP-071 Soil Dissolution, > 1.0g Aliquot, rev 2
CP-934 Neptunium from Solids and Water by Extraction
Chromatography, rev 3

AVERAGES \pm 2 SD MDA 0.20 \pm 0.24
FOR 9 SAMPLES YIELD 62 \pm 40

METHOD SUMMARIES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1973

Test PU Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

METHOD SUMMARY
PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1973

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Plutonium 238	Plutonium 239/240
Preparation batch 7052-062						
J006F4	R211083-01		7393-001	14.8	428	
J006F6	R211083-02		7393-002	33.6	844	
J006F8	R211083-03		7393-003	3.47	71.7	
J006H0	R211083-04		7393-004	12.1	257	
J006H2	R211083-05		7393-005	4.99	108	
J006H4	R211083-06		7393-006	3.32	70.4	
BLK (QC ID=43216)	R211083-08		7393-008	U	<u>0.218</u>	
LCS (QC ID=43215)	R211083-07		7393-007	ok	ok	
Duplicate (R211083-01)	R211083-09		7393-009	ok	ok	
Nominal values and limits from method			RDls (pCi/g)	1.0	1.0	
105H Rx FSB Fill/Sludge Sampling						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYs HELD	ANAL- PREPARED	ANAL- YZED	ANAL- DETECTOR
Preparation batch 7052-062 2σ prep error 5.0 % Reference Lab Notebook 7052 pg. 062																
J006F4	R211083-01			0.19	0.500			65	191				26	12/02/02	12/02	SS-011
J006F6	R211083-02			0.15	0.500			78	195				25	12/02/02	12/02	SS-033
J006F8	R211083-03			0.16	0.500			68	195				25	12/02/02	12/02	SS-043
J006H0	R211083-04			0.13	0.500			85	195				21	12/02/02	12/02	SS-044
J006H2	R211083-05			0.17	0.500			68	195				21	12/02/02	12/02	SS-047
J006H4	R211083-06			0.14	0.500			77	195				25	12/02/02	12/02	SS-048
BLK (QC ID=43216)	R211083-08			0.079	0.500			51	974					12/02/02	12/03	SS-047
LCS (QC ID=43215)	R211083-07			0.15	0.500			85	195					12/02/02	12/02	SS-050
Duplicate (R211083-01) (QC ID=43217)	R211083-09			0.080	0.500			55	974				27	12/02/02	12/03	SS-048
Nominal values and limits from method				1.0	0.500			20-105	100	100	180					

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

Test PU Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

METHOD SUMMARY, cont.
PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1973

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
CP-060	Soil Preparation, rev 4	
CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2	
CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 1	
CP-008	Heavy Element Electroplating, rev 7	

AVERAGES \pm 2 SD FOR 9 SAMPLES	MDA <u>0.14</u> \pm <u>0.076</u>
	YIELD <u>70</u> \pm <u>24</u>

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1973

Test TH	Matrix SOLID
SDG 7393	
Contact	Melissa C. Mannion

METHOD SUMMARY
THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1973

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Thorium 230
Preparation batch 7052-062					
J006F4	R211083-01		7393-001		0.568
J006F6	R211083-02		7393-002		0.550
J006F8	R211083-03		7393-003		0.610
J006H0	R211083-04		7393-004		0.450
J006H2	R211083-05		7393-005		0.807
J006H4	R211083-06		7393-006		0.598
BLK (QC ID=43216)	R211083-08		7393-008		U
LCS (QC ID=43215)	R211083-07		7393-007		ok
Duplicate (R211083-01)	R211083-09		7393-009		ok
Nominal values and limits from method		RDLs (pCi/g)		1.0	
105H Rx FSB Fill/Sludge Sampling					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MAX MDA pCi/g	MDA g	ALIQ FAC	PREP TION	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD PREPARED	ANAL- YZED	DETECTOR
Preparation batch 7052-062 2σ prep error 5.0 % Reference Lab Notebook 7052 pg. 062																
J006F4	R211083-01			0.21	0.250			101	976			27	12/03/02	12/03	SS-040	
J006F6	R211083-02			0.22	0.250			106	976			26	12/03/02	12/03	SS-042	
J006F8	R211083-03			0.21	0.250			100	971			26	12/03/02	12/03	SS-043	
J006H0	R211083-04			0.25	0.250			105	971			22	12/03/02	12/03	SS-044	
J006H2	R211083-05			0.34	0.250			106	116			23	12/03/02	12/04	SS-044	
J006H4	R211083-06			0.25	0.250			96	969			26	12/03/02	12/03	SS-021	
BLK (QC ID=43216)	R211083-08			0.24	0.250			97	969				12/03/02	12/03	SS-024	
LCS (QC ID=43215)	R211083-07			0.24	0.250			96	969				12/03/02	12/03	SS-022	
Duplicate (R211083-01) (QC ID=43217)	R211083-09			0.21	0.250			97	974			27	12/03/02	12/03	SS-050	
Nominal values and limits from method		1.0	0.250					20-105	150			180				

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

Test TH Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

METHOD SUMMARY, cont.
THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1973

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
CP-060	Soil Preparation, rev 4	
CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2	
CP-907	Thorium in Water and Dissolved Solid Samples by TEVA and Anion Exchange Column Method, rev 2	
CP-008	Heavy Element Electroplating, rev 7	

AVERAGES \pm 2 SD MDA 0.24 \pm 0.082
FOR 9 SAMPLES YIELD 100 \pm 9

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/20/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1973

Test U Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H1973

METHOD SUMMARY
URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	1: Uranium	2: Uranium	3: Uranium	RESULT RATIOS (%)			
				233/234	235	238	1-3	2 σ	2+3	2 σ
Preparation batch 7052-062										
J006F4	R211083-01		7393-001	3.26	U	1.98	165	46	7	6
J006F6	R211083-02		7393-002	5.88	0.394	5.26	112	8	7	1
J006F8	R211083-03		7393-003	0.540	U	0.564	96	59	10	11
J006H0	R211083-04		7393-004	1.09	U	1.23	89	36	12	9
J006H2	R211083-05		7393-005	0.875	U	0.792	110	51	6	7
J006H4	R211083-06		7393-006	0.876	U	0.577	152	73	5	9
BLK (QC ID=43216)	R211083-08		7393-008	U	U	U				
LCS (QC ID=43215)	R211083-07		7393-007	ok	ok	ok				
Duplicate (R211083-01)	R211083-09		7393-009	ok	ok	ok	118	12	5	2
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100	4	
105H Rx FSB Fill/Sludge Sampling							Averages 120	8		

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT keV	DAYS HELD	ANAL- PREPARED	ANAL- YZED	ANAL- DETECTOR
Preparation batch 7052-062 2σ prep error 5.0 % Reference Lab Notebook 7052 pg. 062															
J006F4	R211083-01		0.21	0.500		103	129	21	11/27/02	11/27	SS-009				
J006F6	R211083-02		0.067	0.500		103	980	26	11/27/02	12/03	SS-066				
J006F8	R211083-03		0.22	0.500		89	131	20	11/27/02	11/27	SS-032				
J006H0	R211083-04		0.19	0.500		105	131	16	11/27/02	11/27	SS-039				
J006H2	R211083-05		0.19	0.500		104	132	16	11/27/02	11/27	SS-040				
J006H4	R211083-06		0.20	0.500		100	133	20	11/27/02	11/27	SS-048				
BLK (QC ID=43216)	R211083-08		0.042	0.500		99	979		11/27/02	12/03	SS-064				
LCS (QC ID=43215)	R211083-07		0.96	0.500		98	133		11/27/02	11/27	SS-050				
Duplicate (R211083-01)	R211083-09 (QC ID=43217)		0.043	0.500		101	979	27	11/27/02	12/03	SS-065				
Nominal values and limits from method				1.0	0.500	20-105	100 100	180							

METHOD SUMMARIES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1973

Test U Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

METHOD SUMMARY, cont.URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1973

PROCEDURES	REFERENCE	UISO_PLATE_AEA
CP-060	Soil Preparation, rev 4	
CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2	
CP-911	Uranium in Water and Dissolved Sample by Extraction Chromatography, rev 4	
CP-008	Heavy Element Electroplating, rev 7	

AVERAGES ± 2 SD	MDA <u>0.24</u> ± <u>0.56</u>
FOR 9 SAMPLES	YIELD <u>100</u> ± <u>10</u>

METHOD SUMMARIES

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Protocol <u>Hanford</u>
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Version <u>3.06</u>
Report date <u>02/20/03</u>

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1973

Test SR	Matrix SOLID
SDG	7393
Contact Melissa C. Mannion	

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1973

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW	SUF-	Total	
		TEST	FIX	PLANCHET	Strontium
Preparation batch 7052-062					
J006F4	R211083-01		7393-001	1140	
J006F6	R211083-02		7393-002	5060	
J006F8	R211083-03		7393-003	691	
J006H0	R211083-04		7393-004	2330	
J006H2	R211083-05		7393-005	967	
J006H4	R211083-06		7393-006	581	
BLK (QC ID=43216)	R211083-08		7393-008	U	
LCS (QC ID=43215)	R211083-07		7393-007	ok	
Duplicate (R211083-01)	R211083-09		7393-009	ok	
Nominal values and limits from method		RDLS (pCi/g)		1.0	
105H Rx FSB Fill/Sludge Sampling					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-	
		TEST	FIX	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED
Preparation batch 7052-062 2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 062															
J006F4	R211083-01			0.29	1.00			81	106			24	11/30/02	11/30	GRB-219
J006F6	R211083-02			0.30	1.00			82	100			23	11/30/02	11/30	GRB-221
J006F8	R211083-03			0.28	1.00			83	100			23	11/30/02	11/30	GRB-222
J006H0	R211083-04			0.29	1.00			85	100			19	11/30/02	11/30	GRB-223
J006H2	R211083-05			0.25	1.00			96	100			19	11/30/02	11/30	GRB-224
J006H4	R211083-06			0.28	1.00			90	100			23	11/30/02	11/30	GRB-201
BLK (QC ID=43216)	R211083-08			0.25	1.00			78	100				11/30/02	11/30	GRB-205
LCS (QC ID=43215)	R211083-07			0.29	1.00			80	100				11/30/02	11/30	GRB-202
Duplicate (R211083-01) (QC ID=43217)	R211083-09			0.27	1.00			92	100			24	11/30/02	11/30	GRB-204
Nominal values and limits from method		1.0	1.00					30-105	100			180			

METHOD SUMMARIES

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

Test SR Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

METHOD SUMMARY, cont.
TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1973

PROCEDURES REFERENCE SRTOT_SEP_PRECIP_GPC
CP-060 Soil Preparation, rev 4
CP-071 Soil Dissolution, > 1.0g Aliquot, rev 2
CP-502 Strontium in Solids, rev 6

AVERAGES \pm 2 SD MDA 0.28 \pm 0.036
FOR 9 SAMPLES YIELD 85 \pm 12

METHOD SUMMARIES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1973

Test <u>TC</u>	Matrix <u>SOLID</u>
SDG <u>7393</u>	
Contact <u>Melissa C. Mannion</u>	

METHOD SUMMARY

TECHNETIUM 99 IN SOIL
BETA COUNTING

Client <u>Hanford</u>
Contract No. <u>630</u>
Contract SDG H1973

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	Technetium	
				PLANCHET	99
Preparation batch 7052-062					
J006F4	R211083-01		7393-001		U
J006F6	R211083-02		7393-002	2.99	
J006F8	R211083-03		7393-003		U
J006H0	R211083-04		7393-004		U
J006H2	R211083-05		7393-005		U
J006H4	R211083-06		7393-006		U
BLK (QC ID=43850)	R211083-12		7393-012		U
LCS (QC ID=43849)	R211083-11		7393-011	ok	
Duplicate (R211083-01)	R211083-13		7393-013	-	U
Nominal values and limits from method				RDLs (pCi/g)	15
105H Rx FSB Fill/Sludge Sampling					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	ANAL- YZED DETECTOR		
Preparation batch 7052-062 2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 062															
J006F4	R211083-01			1.7	<u>0.230</u>			87	100			106	02/12/03	02/20	GRB-205
J006F6	R211083-02			2.1	<u>0.200</u>			88	100			105	02/12/03	02/20	GRB-206
J006F8	R211083-03			1.8	<u>0.230</u>			85	100			105	02/12/03	02/20	GRB-207
J006H0	R211083-04			2.1	<u>0.200</u>			92	100			101	02/12/03	02/20	GRB-208
J006H2	R211083-05			2.8	<u>0.220</u>			84	50			99	02/12/03	02/18	GRB-205
J006H4	R211083-06			2.5	<u>0.220</u>			93	50			104	02/12/03	02/19	GRB-202
BLK (QC ID=43850)	R211083-12			0.53	1.00			96	50				02/12/03	02/19	GRB-203
LCS (QC ID=43849)	R211083-11			0.57	1.00			93	50				02/12/03	02/18	GRB-207
Duplicate (R211083-01) (QC ID=43851)	R211083-13			2.5	<u>0.230</u>			89	50			106	02/12/03	02/20	GRB-224
Nominal values and limits from method				15	1.00			20-105	50			180			

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

Test TC Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

METHOD SUMMARY, cont.
TECHNETIUM 99 IN SOIL
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1973

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2	
CP-021	Preparation of Tc-99m Tracer, rev 2	
CP-002	Q.C. Preparation, rev 4	
CP-003	Addition of Carriers and Tracers, rev 5	
CP-542	Technetium-99 Purification (Soil) by Extraction Chromatography, rev 2	
CP-008	Heavy Element Electroplating, rev 7	

AVERAGES \pm 2 SD MDA 1.8 \pm 1.6
FOR 9 SAMPLES YIELD 90 \pm 8

METHOD SUMMARIES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1973

Test GAM Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

METHOD SUMMARY
GAMMA SCAN
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1973

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Cobalt 60	Cesium 137
Preparation batch 7052-062					
J006F4	R211083-01	7393-001	351	2080	
J006F6	R211083-02	7393-002	1470	6370	
J006F8	R211083-03	7393-003	104	1420	
J006H0	R211083-04	7393-004	89.0	3080	
J006H2	R211083-05	7393-005	121	1470	
J006H4	R211083-06	7393-006	103	1380	
BLK (QC ID=43216)	R211083-08	7393-008	U	U	
LCS (QC ID=43215)	R211083-07	7393-007	ok	ok	
Duplicate (R211083-01)	R211083-09	7393-009	ok	ok	
Nominal values and limits from method		RDLs (pCi/g)		0.050	0.10
105H Rx FSB Fill/Sludge Sampling					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS	ANAL- YZED	DETECTOR
Preparation batch 7052-062 2σ prep error 15.0 % Reference Lab Notebook 7052 pg. 062														
J006F4	R211083-01	120	811				32			26	11/26/02	12/02	MB,07,00	
J006F6	R211083-02	28	169				136			25	11/26/02	12/02	JR,07,00	
J006F8	R211083-03	8.6	841				51			25	11/26/02	12/02	MB,05,00	
J006H0	R211083-04	26	187				180			21	11/26/02	12/02	JR,04,00	
J006H2	R211083-05	11	883				36			21	11/26/02	12/02	MB,05,00	
J006H4	R211083-06	7.3	854				36			25	11/26/02	12/02	MB,07,00	
BLK (QC ID=43216)	R211083-08	0.43	169				176			11/26/02	12/04	MB,05,00		
LCS (QC ID=43215)	R211083-07	0.20	169				63			11/26/02	12/06	01,03,00		
Duplicate (R211083-01) (QC ID=43217)	R211083-09	19	811				81			26	11/26/02	12/02	02,03,00	
Nominal values and limits from method		0.050 169					100			100		180		

METHOD SUMMARIES

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

Test GAM Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

METHOD SUMMARY, cont.
GAMMA SCAN
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1973

PROCEDURES REFERENCE GAMMA_GS
CP-060 Soil Preparation, rev 4
CP-100 Ge(Li) Preparation for Commercial Samples, rev 5

AVERAGES ± 2 SD MDA 25 ± 74
FOR 9 SAMPLES YIELD _____ ± _____

METHOD SUMMARIES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1973

Test C Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

METHOD SUMMARY
CARBON 14 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1973

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Carbon 14
Preparation batch 7052-062				
J006F4	R211083-01	7393-001	1770	
J006F6	R211083-02	7393-002	10800	
J006F8	R211083-03	7393-003	634	
J006H0	R211083-04	7393-004	710	
J006H2	R211083-05	7393-005	1730	
J006H4	R211083-06	7393-006	754	
BLK (QC ID=43216)	R211083-08	7393-008	U	
LCS (QC ID=43215)	R211083-07	7393-007	ok	
Duplicate (R211083-01)	R211083-09	7393-009	<u>OUT</u>	
Nominal values and limits from method		RDLs (pCi/g)	50	
105H Rx FSB Fill/Sludge Sampling				

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT keV	DRYED HELD PREPARED	ANAL- YZED	DETECTOR
Preparation batch 7052-062 2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 062														
J006F4	R211083-01		3.5	0.280		100	112			19	11/25/02	11/25	LSC-006	
J006F6	R211083-02		11	0.325		100	<u>6</u>			18	11/25/02	11/25	LSC-006	
J006FB	R211083-03		3.6	0.305		100	100			18	11/25/02	11/25	LSC-006	
J006H0	R211083-04		3.6	0.292		100	100			14	11/25/02	11/25	LSC-006	
J006H2	R211083-05		5.4	0.234		100	69			14	11/25/02	11/25	LSC-006	
J006H4	R211083-06		4.4	0.249		100	100			18	11/25/02	11/25	LSC-006	
BLK (QC ID=43216)	R211083-08		4.8	0.234		100	100				11/25/02	11/25	LSC-006	
LCS (QC ID=43215)	R211083-07		6.3	0.234		100	<u>46</u>				11/25/02	11/26	LSC-006	
Duplicate (R211083-01) (QC ID=43217)	R211083-09		3.9	0.300		100	80			19	11/25/02	11/25	LSC-006	
Nominal values and limits from method		50	0.234				50			180				

METHOD SUMMARIES

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

Test C Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

METHOD SUMMARY, cont.
CARBON 14 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1973

PROCEDURES REFERENCE C14_COX_LSC
CP-251 Tritium/Carbon-14 Oxidation, rev 5

AVERAGES \pm 2 SD MDA 5.2 \pm 4.8
FOR 9 SAMPLES YIELD 100 \pm 0

METHOD SUMMARIES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1973

Test H Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

METHOD SUMMARY
TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1973

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	MDA Tritium
Preparation batch 7052-062				
J006F4	R211083-01		7393-001	71.8
J006F6	R211083-02		7393-002	104
J006F8	R211083-03		7393-003	105
J006H0	R211083-04		7393-004	82.0
J006H2	R211083-05		7393-005	35.1
J006H4	R211083-06		7393-006	106
BLK (QC ID=43216)	R211083-08		7393-008	U
LCS (QC ID=43215)	R211083-07		7393-007	ok
Duplicate (R211083-01)	R211083-09		7393-009	<u>DUT</u>
Spike (R211083-02)	R211083-10		7393-010	ok X
Nominal values and limits from method				
RDLS (pCi/g) 400				
105H Rx FSB Fill/Sludge Sampling				

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	MDA pCi/g	ALIQ g	PREP %	DILU- FAC	YIELD TION	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYs HELD PREPARED	ANAL- YZED	DETECTOR
Preparation batch 7052-062 2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 062														
J006F4	R211083-01		0.18	22.6			47	120			21	11/26/02	11/27	LSC-005
J006F6	R211083-02		0.23	20.5			45	104			20	11/26/02	11/27	LSC-005
J006F8	R211083-03		0.22	21.4			45	99			20	11/26/02	11/27	LSC-005
J006H0	R211083-04		0.18	26.6			44	104			16	11/26/02	11/27	LSC-005
J006H2	R211083-05		0.19	22.4			44	120			17	11/26/02	11/28	LSC-005
J006H4	R211083-06		0.23	20.2			44	106			21	11/26/02	11/28	LSC-005
BLK (QC ID=43216)	R211083-08		0.28	20.0			33	120				11/26/02	11/28	LSC-005
LCS (QC ID=43215)	R211083-07		0.28	20.0			33	120				11/26/02	11/28	LSC-005
Duplicate (R211083-01) (QC ID=43217)	R211083-09		0.21	22.3			44	109			22	11/26/02	11/28	LSC-005
Spike (R211083-02) (QC ID=43218)	R211083-10		0.26	20.2			46	82			21	11/26/02	11/28	LSC-005
Nominal values and limits from method					400	20.0			25		180			

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRNLNE
Protocol Hanford
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Form DVD-CMS
Version 3.06
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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

Test H Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

METHOD SUMMARY, cont.
TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1973

PROCEDURES REFERENCE 906.0_H3_LSC
CP-218 Tritium in Soil Samples by Azeotropic
Distillation, rev 1

AVERAGES \pm 2 SD MDA 0.23 \pm 0.076
FOR 10 SAMPLES YIELD 42 \pm 10

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
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Form DVD-CMS
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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

Test <u>NI</u> L Matrix <u>SOLID</u>
SDG <u>7393</u>
Contact <u>Melissa C. Mannion</u>

METHOD SUMMARY
NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client <u>Hanford</u>
Contract No. <u>630</u>
Contract SDG H1973

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Nickel 63
Preparation batch 7052-062				
J006F4	R211083-01	7393-001	18300	
J006F6	R211083-02	7393-002	51000	
J006F8	R211083-03	7393-003	2670	
J006H0	R211083-04	7393-004	2640	
J006H2	R211083-05	7393-005	2910	
J006H4	R211083-06	7393-006	2300	
BLK (QC ID=43216)	R211083-08	7393-008	U	
LCS (QC ID=43215)	R211083-07	7393-007	ok	
Duplicate (R211083-01)	R211083-09	7393-009	ok	
Nominal values and limits from method		RDLs (pCi/g)	30	
105H Rx FSB Fill/Sludge Sampling				

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD PREPARED	ANAL- YZED	DETECTOR
Preparation batch 7052-062 2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 062														
J006F4	R211083-01	12	0.500		86		4			26	12/02/02	12/02	LSC-006	
J006F6	R211083-02	22	0.500		85		1			25	12/02/02	12/02	LSC-006	
J006F8	R211083-03	4.4	0.500		87		30			25	12/02/02	12/02	LSC-006	
J006H0	R211083-04	4.4	0.500		85		31			21	12/02/02	12/02	LSC-006	
J006H2	R211083-05	4.6	0.500		86		28			21	12/02/02	12/02	LSC-006	
J006H4	R211083-06	4.1	0.500		84		36			25	12/02/02	12/02	LSC-006	
BLK (QC ID=43216)	R211083-08	2.2	0.500		96		100				12/02/02	12/02	LSC-006	
LCS (QC ID=43215)	R211083-07	2.2	0.500		96		100				12/02/02	12/02	LSC-006	
Duplicate (R211083-01) (QC ID=43217)	R211083-09	12	0.500		87		4			26	12/02/02	12/02	LSC-006	
Nominal values and limits from method		30	0.500		30-105		50			180				

METHOD SUMMARIES

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-CMS</u>
Version <u>3.06</u>
Report date <u>02/20/03</u>

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

Test NI_L Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

METHOD SUMMARY, cont.
NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1973

PROCEDURES REFERENCE N163_LSC
CP-060 Soil Preparation, rev 4
CP-071 Soil Dissolution, > 1.0g Aliquot, rev 2
CP-431 Nickel-63 Purification, rev 5

AVERAGES \pm 2 SD MDA 7.5 \pm 13
FOR 9 SAMPLES YIELD 88 \pm 9

METHOD SUMMARIES

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/20/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1973

Test <u>PUL</u> Matrix <u>SOLID</u>
SDG <u>7393</u>
Contact <u>Melissa C. Mannion</u>

METHOD SUMMARY
PLUTONIUM 241 IN SOIL
LIQUID SCINTILLATION COUNTING

Client <u>Hanford</u>
Contract No. <u>630</u>
Contract SDG H1973

RESULTS

CLIENT SAMPLE ID	LAB	RAW	SUF-	Plutonium	
	SAMPLE ID	TEST	FIX	PLANCHET	241
Preparation batch 7052-062					
J006F4	R211083-01		7393-001	612	
J006F6	R211083-02		7393-002	1180	
J006F8	R211083-03		7393-003	112	
J006H0	R211083-04		7393-004	475	
J006H2	R211083-05		7393-005	162	
J006H4	R211083-06		7393-006	108	
BLK (QC ID=43216)	R211083-08		7393-008	U	
LCS (QC ID=43215)	R211083-07		7393-007	ok	
Duplicate (R211083-01)	R211083-09		7393-009	ok	
Nominal values and limits from method		RDLs (pCi/g)		15	
105H Rx FSB Fill/Sludge Sampling					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
	SAMPLE ID	TEST	FIX	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD PREPARED	YZED	DETECTOR	
Preparation batch 7052-062 2σ prep error 5.0 % Reference Lab Notebook 7052 pg. 062																
J006F4	R211083-01			18	0.500			74	37				29	12/05/02	12/05	LSC-004
J006F6	R211083-02			22	0.500			78	16				28	12/05/02	12/05	LSC-004
J006F8	R211083-03			9.8	0.500			81	100				28	12/05/02	12/05	LSC-004
J006H0	R211083-04			12	0.500			77	43				24	12/05/02	12/05	LSC-004
J006H2	R211083-05			11	0.500			69	100				24	12/05/02	12/05	LSC-004
J006H4	R211083-06			9.0	0.500			77	100				29	12/05/02	12/06	LSC-004
BLK (QC ID=43216)	R211083-08			13	0.500			82	100					12/05/02	12/06	LSC-004
LCS (QC ID=43215)	R211083-07			7.7	0.500			81	100					12/05/02	12/06	LSC-004
Duplicate (R211083-01) (QC ID=43217)	R211083-09			19	0.500			81	40				30	12/05/02	12/06	LSC-004
Nominal values and limits from method		15		0.500					100				100		180	

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Protocol <u>Hanford</u>
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Version <u>3.06</u>
Report date <u>02/20/03</u>

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

Test PU L Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

METHOD SUMMARY, cont.
PLUTONIUM 241 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1973

PROCEDURES	REFERENCE	PU241_IE_LSC
CP-060	Soil Preparation, rev 4	
CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2	
CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 1	
CP-008	Heavy Element Electroplating, rev 7	
RP-948	Plutonium-241 by Liquid Scintillation Counting, rev 2	

AVERAGES \pm 2 SD FOR 9 SAMPLES	MDA <u>14</u> \pm <u>10</u>
	YIELD <u>78</u> \pm <u>8</u>

METHOD SUMMARIES

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Report date <u>02/20/03</u>

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

Test <u>NI</u>	Matrix <u>SOLID</u>
SDG <u>7393</u>	
Contact <u>Melissa C. Mannion</u>	

METHOD SUMMARY
NICKEL 59 IN SOIL
GAMMA SPECTROSCOPY

Client <u>Hanford</u>
Contract No. <u>630</u>
Contract SDG <u>H1973</u>

RESULTS

CLIENT SAMPLE ID	LAB	RAW	SUF-	
	SAMPLE ID	TEST	FIX	PLANCHET
				Nickel 59

Preparation batch 7052-062

J006F4	R211083-01	7393-001	162	X
J006F6	R211083-02	7393-002	433	X
J006F8	R211083-03	7393-003	23.3	X
J006H0	R211083-04	7393-004	26.3	X
J006H2	R211083-05	7393-005	17.0	X
J006H4	R211083-06	7393-006	20.0	X
BLK (QC ID=43216)	R211083-08	7393-008	U	
LCS (QC ID=43215)	R211083-07	7393-007	ok	
Duplicate (R211083-01)	R211083-09	7393-009	ok	X

Nominal values and limits from method	RDLs (pCi/g)	30
105H Rx FSB Fill/Sludge Sampling		

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-	
	SAMPLE ID	TEST	FIX	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	YZED	DETECTOR

Preparation batch 7052-062 2σ prep error 10.0 % Reference Lab Notebook 7052 pg. 062

J006F4	R211083-01	17	0.500							218			28	12/03/02	12/04 XSPEC-002
J006F6	R211083-02	15	0.500							265			28	12/03/02	12/05 XSPEC-002
J006F8	R211083-03	13	0.500							348			27	12/03/02	12/04 XSPEC-002
J006H0	R211083-04	14	0.500							267			24	12/03/02	12/05 XSPEC-016
J006H2	R211083-05	7.6	0.500							852			23	12/03/02	12/04 XSPEC-002
J006H4	R211083-06	9.0	0.500							689			28	12/03/02	12/05 XSPEC-002
BLK (QC ID=43216)	R211083-08	16	0.500							165				12/03/02	12/05 XSPEC-016
LCS (QC ID=43215)	R211083-07	13	0.500							276				12/03/02	12/05 XSPEC-002
Duplicate (R211083-01) (QC ID=43217)	R211083-09	21	0.500							157			29	12/03/02	12/05 XSPEC-002

Nominal values and limits from method	30	0.500	25	180
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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1973

Test NI Matrix SOLID
SDG 7393
Contact Melissa C. Mannion

METHOD SUMMARY, cont.
NICKEL 59 IN SOIL
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1973

PROCEDURES	REFERENCE	N159_GS
CP-060	Soil Preparation, rev 4	
CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2	
RP-430	Nickel-59 Isolation and Purification, rev 4	

AVERAGES ± 2 SD FOR 9 SAMPLES	MDA <u>14</u> ± <u>8.1</u>
	YIELD _____ ± _____

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

R E P O R T G U I D E

Client Hanford
Contract No. 630
Case no SDG H1973

S A M P L E S U M M A R Y

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

- * All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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Version Ver 1.0
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Version 3.06
Report date 02/20/03

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

R E P O R T G U I D E

Client Hanford
Contract No. 630
Case no SDG H1973

P R E P A R A T I O N B A T C H S U M M A R Y

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified.
Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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Report date 02/20/03

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SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

R E P O R T G U I D E

Client Hanford
Contract No. 630
Case no SDG H1973

W O R K S U M M A R Y

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/20/03

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

R E P O R T G U I D E

Client Hanford
Contract No. 630
Case no SDG H1973

D A T A S H E E T

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- * ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

G U I D E , c o n t .

Client Hanford
Contract No. 630
Case no SDG H1973

D A T A S H E E T

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

- L Some Lab Control Sample that QC'd this sample had a low recovery. The lab can disable assignment of this qualifier.
- H Similar to 'L' except the recovery was high.
- P The RESULT is 'preliminary'.
- X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
- 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

- * An MDA is underlined if it is bigger than its RDL.

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SUMMARY DATA SECTION

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Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

G U I D E , c o n t .

Client Hanford
Contract No. 630
Case no SDG H1973

D A T A S H E E T

- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

R E P O R T G U I D E

Client Hanford
Contract No. 630
Case no SDG_H1973

L A B C O N T R O L S A M P L E

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.
- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
 2. The error of ADDED.
 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

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Protocol Hanford
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Form DVD-RG
Version 3.06
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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

R E P O R T G U I D E

Client Hanford
Contract No. 630
Case no SDG H1973

D U P L I C A T E

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '--' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- * The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- * The second limit for the RPD is the larger of:
 1. A fixed percentage specified in the protocol.

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Protocol Hanford
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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

G U I D E , c o n t .

Client Hanford
Contract No. 630
Case no SDG H1973

D U P L I C A T E

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

- * The RPD is underlined if it is greater than either limit.
- * If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

- * The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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Protocol Hanford
Version Ver 1.0
Form DVD-RG
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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

R E P O R T G U I D E

Client Hanford
Contract No. 630
Case no SDG H1973

M A T R I X S P I K E

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

- * The first, computed limits for the recovery reflect:

1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

- * The second limits are protocol defined upper and lower QC limits

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Version 3.06
Report date 02/20/03

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

G U I D E , c o n t .

Client Hanford
Contract No. 630
Case no SDG H1973

M A T R I X S P I K E

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

- * The recovery is underlined (out of spec) if it is outside either of these ranges.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/20/03

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

R E P O R T G U I D E

Client Hanford
Contract No. 630
Case no SDG H1973

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- * Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

- * The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

- * If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/20/03

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SAMPLE DELIVERY GROUP H1973

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G U I D E , c o n t .

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METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
 - * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.
- MDAs are underlined if greater than the printed RDL.
- * Aliquots are underlined if less than the nominal value specified for the method.
 - * Preparation factors are underlined if greater than the nominal value specified for the method.
 - * Dilution factors are underlined if greater than the nominal value specified for the method.
 - * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
 - * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
 - * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/20/03

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

G U I D E , c o n t .

Client Hanford
Contract No. 630
Case no SDG H1973

METHOD SUMMARY

- * Count times are underlined if less than the nominal value specified for the method.
- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1+3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE
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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1973

SDG 7393
Contact Melissa C. Mannion

G U I D E , c o n t .

Client Hanford
Contract No. 630
Case no SDG H1973

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/20/03

7343

SD65 H1973

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B02-037-07	Page 1 of 1				
Collector Renee Nielson		Company Contact Rikki Thoren Telephone No. 372-2178			Project Coordinator TRENT, SJ		Price Code 8K		Data Turnaround				
Project Designation 105H Rx FSB Fill/Sludge Sampling for Waste Designation		Sampling Location 105H			SAF No. B02-037		Air Quality <input checked="" type="checkbox"/>		15 Days				
Ice Chest No. <i>ERC 02 008</i>		Field Logbook No. EL-1516-1		COA R105HX2F2C		Method of Shipment Federal Express							
Shipped To <input checked="" type="checkbox"/> TMA/RECRA		Offsite Property No. <i>RSR 106 996</i>			Bill of Lading/Air Bill No. <i>N/A</i>								
POSSIBLE SAMPLE HAZARDS/REMARKS <i>Alpha Contamination</i>													
Special Handling and/or Storage		Preservation	None	Cool 4C	Cool 4C								
		Type of Container	aG	aG	aG								
		No. of Container(s)	1	1	1								
		Volume	1000mL	500mL	250mL								
SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.	PCBs - 8082 <i>11/15/02</i>							
Sample No.	Matrix *	Sample Date	Sample Time										
J006F4	SOIL	<i>11-6-02</i>	<i>1421</i>	X	X	X							
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By/Removed From <i>Renee Nielson</i>	Date/Time <i>11/11/02</i>	Received By/Stored In <i>REF#1A/3728</i>	Date/Time <i>11-11-02 1630</i>					(1) Tritium - 113; Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Carbon-14; Nickel-59; Nickel-63; Neptunium-237; Isotopic Plutonium; Plutonium-241; Strontium-89,90 -- Total Sr; Isotopic Thorium; Isotopic Uranium; <i>Special Extraction, contact Joan Kessner 11/12/02</i> (2) ICP Metals - 6010A (TAL) {Barium, Cadmium, Chromium}; ICP Metals - 6010A (Add-on) {Lead}; Mercury - 7471 - (CV); Paint Filters/Fluids; moisture content;				S=Soil SE=Sediment SO=Solid SI=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From <i>REF 1A 11/5/02</i>	Date/Time	Received By/Stored In <i>37025 J. Nielson 11/5/02 0800</i>	Date/Time										
Relinquished By/Removed From <i>Storage Tank 11/5/02 0800</i>	Date/Time	Received By/Stored In <i>FED EX</i>	Date/Time										
Relinquished By/Removed From <i>Fed Ex 11/18/02 9:35</i>	Date/Time <i>11/18/02 9:35</i>	Received By/Stored In <i>Fed Ex 11/18/02 9:35</i>	Date/Time										
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time										
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time										
LABORATORY SECTION	Received By	Title						Date/Time					
FINAL SAMPLE DISPOSITION	Disposal Method							Disposed By	Date/Time				

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B02-037-08	Page 1 of 1
Collector Renee Nielson		Company Contact Rikki Thoren Telephone No. 372-2178			Project Coordinator TRENT, SJ		Price Code 8K		Data Turnaround
Project Designation 105H Rx FSB Fill/Sludge Sampling for Waste Designation		Sampling Location 105H			SAF No. B02-037		Air Quality		15 Days
Ice Chest No. <i>ERC 02 406</i>		Field Logbook No. EL-1516-1		COA R105HX2F2C		Method of Shipment Federal Express			
Shipped To <i>TMA/RECRA</i>		Offsite Property No. <i>PSR 106994</i>			Bill of Lading/Air Bill No.				<i>NA</i>
POSSIBLE SAMPLE HAZARDS/REMARKS		Preservation		None	Cool 4C	Cool 4C	None		
Special Handling and/or Storage		Type of Container		aG <i>RuN 11/14/02</i>	aG <i>RuN 11/14/02</i>	aG <i>RuN 11/14/02</i>	aG <i>11/14/02</i>		
		No. of Container(s)		2	2	2	2		
		Volume		100mL <i>250</i>	50mL <i>250</i>	250mL <i>250</i>	125mL <i>125mL</i>		
SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.	PCBs - 8082 <i>11/14/02</i>	See item (1) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time						
J006F6	SOIL	11-7-02	1035	X	X	X	X		
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS	
Relinquished By/Removed From <i>Renee Nielson</i>	Date/Time 11/7/02 1430	Received By/Stored In 105H RMSA	Date/Time 11/7/02 1430					(1) Tritium - H3; Americium-241; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Carbon-14; Nickel-59; Nickel-63; Neptunium-237; Isotopic Plutonium; Plutonium-241; Strontium-89,90 -- Total Sr; Isotopic Thorium; Isotopic Uranium (2) ICP Metals - 6010A (TAL) (Barium, Cadmium, Chromium); ICP Metals - 6010A (Add-on) (Lead); Mercury - 7471 - (CV)	
Relinquished By/Removed From <i>R. Fally</i>	Date/Time 11-14-02 1015	Received By/Stored In 105H RMSA	Date/Time 11-14-02 1015						
Relinquished By/Removed From <i>R. Fally</i>	Date/Time 11-14-02 1215	Received By/Stored In Ref 1B 3728	Date/Time 11-14-02 1215						
Relinquished By/Removed From <i>REF 1B 11/14/02 0730</i>	Date/Time 11/14/02 0730	Received By/Stored In SJ GAC-Sample	Date/Time 11/15/02 0730					Personnel not available to relinquish samples from the 3728 Ref # RMSA on 11/14/02	
Relinquished By/Removed From <i>SJ GAC-Sample 11/14/02 0730</i>	Date/Time 11/14/02 0730	Received By/Stored In FED EX	Date/Time					Personnel not available to relinquish samples from the 3728 Ref # RMSA on 11/14/02	
Relinquished By/Removed From <i>Fed Ex 11/18/02 9:35</i>	Date/Time 11/18/02 9:35	Received By/Stored In Judd Davis	Date/Time 11/18/02 9:35						
LABORATORY SECTION	Received By	Title						Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method							Disposed By	Date/Time

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B02-037-09	Page 1 of 1
Collector Renee Nielson		Company Contact Rikki Thoren Telephone No. 372-2178			Project Coordinator TRENT, SJ		Price Code 8K		Data Turnaround
Project Designation 105H Rx FSB Fill/Sludge Sampling for Waste Designation		Sampling Location 105H			SAF No. B02-037		Air Quality <input type="checkbox"/>		15 Days
Ice Chest No. <i>ERC 02 002</i>		Field Logbook No. EL-1516-1		COA R105HX2F2C		Method of Shipment Federal Express			
Shipped To <i>TMA/RECRA</i>		Offsite Property No. <i>RSR 106 998</i>			Bill of Lading/Air Bill No. <i>N/A</i>				
POSSIBLE SAMPLE HAZARDS/REMARKS <i>Alpha Contamination</i>		Preservation		None	Cool 4C	Cool 4C			
Special Handling and/or Storage		Type of Container		aG	aG	aG			
		No. of Container(s)		1	1	1			
		Volume		1000mL	500mL	250mL			
SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.	<i>PCBs - 8082</i> <i>11-3-02</i>			
Sample No.	Matrix *	Sample Date	Sample Time						
J006F8	SOIL	11-7-02	1332	X	X	X			1006F7
CHAIN OF POSSESSION				Sign/Print Names					
Relinquished By/Removed From <i>Renee Nielson</i>	Date/Time <i>11-11-02 1630</i>	Received By/Stored In <i>Ref # 1A/3728</i>	Date/Time <i>11-11-02 1630</i>	SPECIAL INSTRUCTIONS					
Relinquished By/Removed From <i>REF 1A 11/15/02 0800</i>	Date/Time <i>11/15/02 0800</i>	Received By/Stored In <i>SUGALEY/McKEE</i>	Date/Time <i>11/15/02 0800</i>	(1) Tritium - H3; Americium-241; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Carbon-14; Nickel-59; Nickel-63; Neptunium-237; Isotopic Plutonium; Plutonium-241; Strontium-89,90 - Total Sr; Isotopic Thorium; Isotopic Uranium; Special Extraction Contact Joan Kessner 11/12/02					
Relinquished By/Removed From <i>SUGALEY/McKEE 11/15/02 0800</i>	Date/Time <i>11/15/02 0800</i>	Received By/Stored In <i>FED EX</i>	Date/Time	(2) ICP Metals - 6010A (TAL) (Barium, Cadmium, Chromium); ICP Metals - 6010A (Add-on) (Lead); Mercury - 7471 - (CV); Paint Filter liquids; Moisture Content; SPECIAL EXTRACTION (CONTACT JOAN KESSNER) 0800 11/12/02					
Relinquished By/Removed From <i>FED EX 11/15/02 9:35AM</i>	Date/Time <i>11/15/02 9:35AM</i>	Received By/Stored In <i>Andy Davis</i>	Date/Time <i>11/15/02 9:35AM</i>	Personnel not available to relinquish samples from the 3728 Ref # <i>1A</i> on <i>11/15/02</i>					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time						
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time						
LABORATORY SECTION	Received By						Title		Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method						Disposed By		Date/Time

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B02-037-10	Page 1 of 1	
Collector Renee Nielson		Company Contact Rikki Thoren		Telephone No. 372-2178	Project Coordinator TRENT, SJ		Price Code 8K	Data Turnaround
Project Designation 105H Rx FSB Fill/Sludge Sampling for Waste Designation		Sampling Location 105H			SAF No. B02-037		Air Quality	15 Days
Ice Chest No. <i>ERC 02 008</i>		Field Logbook No. EL-1516-1		COA R1051X2H2C	Method of Shipment Federal Express			
Shipped To <i>TMA/RCRA</i>		Offsite Property No. <i>RSR 106996</i>		Bill of Lading/Air Bill No. <i>WA</i>				
POSSIBLE SAMPLE HAZARDS/REMARKS <i>Alpha contamination</i> <i>Tie To T006F3</i>		Preservation		None	Cool 4C	Cool 4C		
Special Handling and/or Storage <i>No</i>		Type of Container		aG	aG	aG		
		No. of Container(s)		1	1			
		Volume		1000mL	500mL	280mL		
SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.	PCBs - 3062		
Sample No.	Matrix *	Sample Date	Sample Time					
J006H0	SOIL	11/11/02	1304	X	X	X	<i>J006F9</i>	
CHAIN OF POSSESSION Sign/Print Names								
Relinquished By/Removed From <i>Renee Nielson R. Nielsen 11-11-02</i>	Date/Time	Received By/Stored In <i>Ref # 1A/3728 11-11-02 1630</i>	Date/Time	SPECIAL INSTRUCTIONS				
Relinquished By/Removed From <i>REF 1A 11/15/02 0800</i>	Date/Time	Received By/Stored In <i>SJ GALE 11/15/02 0800</i>	Date/Time	(1) Tritium - 113; Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Carbon-14; Nickel-59; Nickel-63; Neptunium-237; Isotopic Plutonium; Plutonium-241; Strontium-89/90 - Total Sr; Isotopic Thorium; Isotopic Uranium sample collection form 106				
Relinquished By/Removed From <i>SJ GALE 11/15/02 0800</i>	Date/Time	Received By/Stored In <i>FED EX</i>	Date/Time	(2) ICP Metals - 6010A (TAL) [Barium, Cadmium, Chromium]; ICP Metals - 6010A (Add-on) [Lead]; Mercury - 7471 - (CV); Paint Filter Liquids; moisture content;				
Relinquished By/Removed From <i>Fed Ex 11/18/02 9:35</i>	Date/Time	Received By/Stored In <i>11/18/02 9:35 am</i>	Date/Time	SPECIAL EXTRACTION (CONTACT JOAN KESSER) <i>11/12/02</i>				
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	Personnel not available to relinquish samples from the 3728 Ref # <i>1A</i> on <i>11/15/02</i>				
LABORATORY SECTION	Received By				Title		Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method				Disposed By		Date/Time	

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B02-037-11	Page 1 of 1	
Collector Renee Nielson		Company Contact Rikki Thoren		Telephone No. 372-2178		Project Coordinator TRENT, SJ		Price Code 8K	Data Turnaround 15 Days
Project Designation 105H Rx FSB Fill/Sludge Sampling for Waste Designation		Sampling Location 105H				SAF No. B02-037			
Ice Chest No. <i>ERL 02 002</i>		Field Logbook No. EL-1516-1		COA R105HX2F2C		Method of Shipment Federal Express			
Shipped To <i>IMA/RCRA</i>		Offsite Property No. <i>RSR 106998</i>				Bill of Lading/Air Bill No. <i>N/A</i>			
POSSIBLE SAMPLE HAZARDS/REMARKS <i>Alpha Contamination</i>		Preservation	None	Cool 4C	Cool 4C				
Special Handling and/or Storage		Type of Container	aG	aG	aG				
		No. of Container(s)	1	1	1				
		Volume	1000mL	500mL	250mL				
SAMPLE ANALYSIS				See item (1) in Special Instructions.	See item (2) in Special Instructions.	PCBs - 8082 <i>R 11/15/02</i>			
Sample No.	Matrix *	Sample Date	Sample Time						
J006H2	SOIL	<i>11/11/02</i>	<i>1035</i>	X	X	X			
CHAIN OF POSSESSION				Sign/Print Names					
Relinquished By/Removed From <i>Renee Nielson 11-11-02</i>	Date/Time <i>1630</i>	Received By/Stored In <i>REF# 1A / 3728 11-11-02 1630</i>	SPECIAL INSTRUCTIONS					Matrix *	
Relinquished By/Removed From <i>REF 1A 11/15/02 0800</i>	Date/Time <i>0800</i>	Received By/Stored In <i>SIGARO 11/15/02 0800</i>	(1) Tritium - H3; Americium-241; Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Carbon-14; Nickel-59; Nickel-63; Neptunium-237; Isotopic Plutonium, Plutonium-241; Strontium-89,90 - Total Sr; Isotopic Thorium; Isotopic Uranium ; <i>SPECIAL EXTRACTION, CONTACT JOAN KESSNER 11/11/02</i> (2) ICP Metals - 6010A (TAL) {Barium, Cadmium, Chromium}; ICP Metals - 6010A (Add-on) {Lead}; Mercury - 7471 - (CV); Paint Filters/liquid; moisture content;					S=Soil SE=Sediment SO=Solid SI=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WT=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From <i>FED EX 11/11/02 9:35AM</i>	Date/Time <i>11/11/02 9:35AM</i>	Received By/Stored In <i>FED EX</i>	<i>SPECIAL EXTRACTION (CONTACT JOAN KESSNER) 11/11/02</i>						
Relinquished By/Removed From <i>FED EX</i>	Date/Time <i>11/11/02 9:35AM</i>	Received By/Stored In <i>FED EX</i>	Personnel not available to relinquish samples from the 3728 Ref # <i>1A</i> on <i>11/15/02</i>						
Relinquished By/Removed From	Date/Time	Received By/Stored In							
Relinquished By/Removed From	Date/Time	Received By/Stored In							
LABORATORY SECTION	Title					Date/Time			
FINAL SAMPLE DISPOSITION	Disposed By					Date/Time			

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B02-037-12	Page <u>1</u> of <u>1</u>																																														
Collector Renee Nielson		Company Contact Rikki Thoren			Telephone No. 372-2178		Project Coordinator TRENT, SJ		Price Code 8K	Data Turnaround 15 Days																																													
Project Designation 105H Rx FSB Fill/Sludge Sampling for Waste Designation		Sampling Location 105H				SAF No. B02-037		Air Quality <input type="checkbox"/>																																															
Ice Chest No. ERC 02 002		Field Logbook No. EL-1516-1		COA R105HX2F2C		Method of Shipment Federal Express																																																	
Shipped To (TMA) RECREA		Offsite Property No. RSR 106 998				Bill of Lading/Air Bill No. N/A																																																	
POSSIBLE SAMPLE HAZARDS/REMARKS Alpha Contamination Tie Td-J006F3		<table border="1"> <tr> <td>Preservation</td> <td>None</td> <td>Cool 4C</td> <td>Cool 4C</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Type of Container</td> <td>aG</td> <td>aG</td> <td>aG</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>No. of Container(s)</td> <td>1</td> <td>1</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Volume</td> <td>1000mL</td> <td>500mL</td> <td>250mL</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>										Preservation	None	Cool 4C	Cool 4C								Type of Container	aG	aG	aG								No. of Container(s)	1	1	1								Volume	1000mL	500mL	250mL							
Preservation	None	Cool 4C	Cool 4C																																																				
Type of Container	aG	aG	aG																																																				
No. of Container(s)	1	1	1																																																				
Volume	1000mL	500mL	250mL																																																				
SAMPLE ANALYSIS				See item (1) in Special Instructions:	See item (2) in Special Instructions:	PCBs - 80/82 5 11/15																																																	
Sample No.	Matrix *	Sample Date	Sample Time																																																				
J006H4	SOIL	11-7-02	1332	X	X	Y																																																	
CHAIN OF POSSESSION				Sign/Print Names							Matrix *																																												
Relinquished By/Removed From Renee Nielson	Date/Time 11-1-02	Received By/Stored In Ref# 1A/3728	Date/Time 11-1-02 1630	<p>SPECIAL INSTRUCTIONS</p> <p>(1) Tritium - H3; Americium-241; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Barium-133}; Carbon-14; Nickel-59; Nickel-63; Neptunium-237; Isotopic Plutonium; Plutonium-241; Strontium-89,90 -- Total Sr; Isotopic Thorium; Isotopic Uranium <i>Special Extraction Contact Joan Kessner 11/15/02</i></p> <p>(2) ICP Metals - 6010A (TAL) {Barium, Cadmium, Chromium}; ICP Metals - 6010A (Add-on) {Lead}; Mercury - 7471 - (CV); Paint Filter Liquids; moisture content;</p> <p>SPECIAL EXTRACTION (CONTACT JOAN KESSNER) 11/15/02</p> <p>Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/15/02</p>							S=Soil SE=Sediment SO=Solid SI=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue W=Wipe L=Liquid V=Vegetation X=Other																																												
Relinquished By/Removed From REF 1A 11-15-02 0800	Date/Time 11-15-02 0800	Received By/Stored In SJ GALE Msch 11/15/02	Date/Time 0800																																																				
Relinquished By/Removed From SJ GALE 11-15-02 0800	Date/Time 11-15-02 0800	Received By/Stored In SJ GALE Msch 11/15/02	Date/Time 0800																																																				
Relinquished By/Removed From SJ GALE 11-15-02 0800	Date/Time 11-15-02 0800	Received By/Stored In FCD EX	Date/Time																																																				
Relinquished By/Removed From FCD EX 11-17-02 9:35	Date/Time 11-17-02 9:35	Received By/Stored In 150 Baras 11/17/02 9:35	Date/Time																																																				
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time																																																				
LABORATORY SECTION	Title							Date/Time																																															
FINAL SAMPLE DISPOSITION	Disposed By							Date/Time																																															

SAMPLE RECEIPT CHECKLIST**SAMPLE RECEIPT**Client: Bechtel Hanford Date/Time received 11/10/02 9:35 amCoC No. B02-037-07, 10Container I.D. No. ERC 02-048 Requested TAT (Days) 15 P.O. Received Yes [] No []**INSPECTION**

1. Custody seals on shipping container intact? Yes No [] N/A []
2. Custody seals on shipping container dated & signed? Yes No [] N/A []
3. Custody seals on sample containers intact? Yes No [] N/A []
4. Custody seals on sample containers dated & signed? Yes No [] N/A []
5. Packing material is: Wet [] Dry
6. Number of samples in shipping container: 2
7. Number of containers per sample: 1 (Or see CoC _____)
8. Paperwork agrees with samples? Yes No []
9. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels
10. Samples are: In good condition Leaking [] Broken Container [] Missing []
11. Describe any anomalies:

13. Was P.M. notified of any anomalies? Yes [] No [] Date _____
14. Received by Andy Davis Date: 11/10/02 Time: 9:35 am

Customer Sample

No.	cpm	mr/hr	wipe
300640	1000	0.02	_____
3006F4	2000	0.057	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Customer Sample

No.	cpm	mr/hr	wipe
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Ion Chamber Ser. No. _____

Calibration date _____

Alpha meter Ser. No. _____

Calibration date _____

Survey Meter Ser. No. _____

Calibration date _____

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT			
Client:	<u>Bechtel Hanford</u>	Date/Time received	<u>11/18/02 9:35 AM</u>
CoC No.	<u>B32-037-08</u>		
Container I.D. No.	<u>ERC DL-406</u>	Requested TAT (Days)	<u>15</u>
P.O. Received	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
INSPECTION			
1. Custody seals on shipping container intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
2. Custody seals on shipping container dated & signed?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
3. Custody seals on sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
4. Custody seals on sample containers dated & signed?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
5. Packing material is:	Wet <input type="checkbox"/>	Dry <input type="checkbox"/>	
6. Number of samples in shipping container:	<u>1</u>		
7. Number of containers per sample:	<u>4</u> (Or see CoC _____)		
8. Paperwork agrees with samples?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
9. Samples have: Tape <input type="checkbox"/> Hazard labels <input type="checkbox"/> Rad labels <input type="checkbox"/> Appropriate sample labels <input checked="" type="checkbox"/>			
10. Samples are: In good condition <input checked="" type="checkbox"/> Leaking <input type="checkbox"/> Broken Container <input type="checkbox"/> Missing <input type="checkbox"/>			
11. Describe any anomalies:	<hr/> <hr/>		
13. Was P.M. notified of any anomalies? Yes <input type="checkbox"/> No <input type="checkbox"/> Date _____			
14. Received by <u>Andrea</u> Date: <u>11/18/02</u> Time: <u>9:35 AM</u>			

Customer Sample

No.	cpm	mr/hr	wipe
<u>2006FG</u>	<u>4003cpm</u>	<u>0.058</u>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>

Customer Sample

No.	cpm	mr/hr	wipe
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>
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<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>

Ion Chamber Ser. No. _____

Calibration date _____

Alpha meter Ser. No. _____

Calibration date _____

Survey Meter Ser. No. _____

Calibration date _____

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT				
Client:	<u>Bechtel Hanford</u>		Date/Time received	<u>11/18/02 9:35 AM</u>
CoC No.	<u>B02-037-09,11,12</u>			
Container I.D. No.	<u>ERC 02-002</u>		Requested TAT (Days)	<u>15</u>
			P.O. Received	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
INSPECTION				
1.	Custody seals on shipping container intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
2.	Custody seals on shipping container dated & signed?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
3.	Custody seals on sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
4.	Custody seals on sample containers dated & signed?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
5.	Packing material is:	Wet <input type="checkbox"/>	Dry <input checked="" type="checkbox"/>	
6.	Number of samples in shipping container:	<u>3</u>		
7.	Number of containers per sample:	<u>1</u>	(Or see CoC _____)	
8.	Paperwork agrees with samples?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
9.	Samples have: Tape <input type="checkbox"/> Hazard labels <input type="checkbox"/> Rad labels <input type="checkbox"/> Appropriate sample labels <input checked="" type="checkbox"/>			
10.	Samples are: In good condition <input checked="" type="checkbox"/> Leaking <input type="checkbox"/> Broken Container <input type="checkbox"/> Missing <input type="checkbox"/>			
11.	Describe any anomalies:	<hr/> <hr/>		
13.	Was P.M. notified of any anomalies? Yes <input type="checkbox"/> No <input type="checkbox"/> Date _____			
14.	Received by <u>AJG, Dan</u>	Date: <u>11/18/02</u>	Time: <u>9:35 AM</u>	

Customer Sample				Customer Sample			
No.	cpm	mr/hr	wipe	No.	cpm	mr/hr	wipe
<u>J006H2</u>	<u>1006</u>	<u>0.006</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>J006H4</u>	<u>1023</u>	<u>1.61</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>J006F8</u>	<u>800</u>	<u>0.005</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
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<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

Ion Chamber Ser. No. _____ Calibration date _____

Alpha meter Ser. No. _____ Calibration date _____

Survey Meter Ser. No. _____ Calibration date _____